AMERICAN BEE JOURNAL

The Oldest Bee Journal in the English Language

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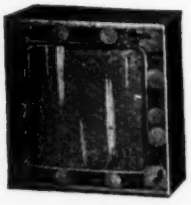
3 lb. jars, 12 in ctn., wt. 21 lbs.	.68	.70	.69	.70	.70

*Can only be shipped 16/c.



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American Bee Journal

Vol. LXXVIII—No. 8 Hamilton, Illinois, August, 1938 Monthly, $1.00 a year

Sainfoin

NEW forage crops have been introduced to American agriculture with frequent regularity since the beginning of white settlement in this country. Thus many of our best honey plants have come as forage crops brought for our farmers. Of late, the tendency has been to place emphasis on crops which are of less value to the honeybee than those of former years. Soy beans and Lespedeza are increasing greatly in popularity at the present time, yet neither promises to be of great importance to the honey producers generally.

There are other good forage crops which are also good honey plants, and the beekeepers need to resume some of their former activity in an effort to establish them in America.

Sainfoin, or esparcet, is a very fine forage plant commonly grown by European farmers, which is also a splendid source of honey. Readers who have access to American Honey Plants, by the field editor of this magazine, will find sainfoin discussed at length in that book.

Numerous efforts have been made to introduce sainfoin into this country but with little success. The fact that good reports come from it in the mild climate of British Columbia, indicates that the common strains are not hardy enough for our northern climate.

In our search for new honey plants we have learned of a strain of sainfoin from Asia which is reported to stand more cold and more drouth than the common kinds. It is also reported as yielding more hay. It seems probable that the failures with sainfoin in this country may be from getting the tender varieties.

The American Bee Journal would like to see a systematic effort to improve the bee pasture through finding better forage crops for American farms which are at the same time better honey plants.

———ABJ———

Honey as a Food

ONE has but to read the new book, "Honey and Health," by Dr. Bodog F. Beck, to learn how greatly human food habits have changed in recent times. Our entire American civilization is based upon mass production and even our health is sacrificed to secure a larger output.

Because refined foods are easier to handle, keep better and permit of large profits, we have lost sight of the fact that they are lacking in essential elements necessary to life.

In the case of sugar the minerals give the dark color to unrefined sugar but to secure the refined product practically everything is removed but the pure sucrose. Flour is refined in similar manner

New regulations have been promulgated by the State Entomologist of North Carolina regarding bee diseases.

It is now prohibited to import into North Carolina from any other state or country, bees on combs or foundation, nuclei, used hives, used combs or other used apiary equipment of any kind whatever.

Combless packages accompanied by proper certificates are admitted.

The regulations also provide for the inspection of nuclei and colonies of queen breeding apiaries.

Certificates of inspection are required for any movement of bees within the state and there is proper provision for the quarantining of these apiaries at all times.

The keeping within a quarantined zone of bees in box hives is prohibited and such bees may be destroyed where, in the opinion of the inspector, they are a public nuisance.

Severe penalties are invoked for the exposure of diseased materials and infectious apiary materials are liable to destruction.

Proper regulations for allowing the apiary inspector to enter premises for inspection, etc. are provided. Copies of these regulations may be obtained by writing to State Entomologist, C. H. Brannon, Raleigh, North Carolina.

♦

In the July issue of American Bee Journal, Harold J. Clay has an article about the distribution of honey.

One thing that impressed me was that the honey producing people are not the greatest honey consuming people per capita. I for one firmly believe that the beekeeper should lead others to a greater honey consumption. Why should we use sugar when we have a more delicious, healthful and delightful sweet to use:

In our home, in a family of four, we use about six and one-half pounds of honey per person each month. My wife does all cooking with honey, in fact has not had white sugar in the house for over a year. All people need to do is to learn to cook with it. I think that it would become a favorite. I believe that our problems, that is, some, would be solved if we taught people how to use nature's own sweet.

Shelby F. Garner, Minnesota.

Effective June 21, 1938, the state of Virginia has an apiary law. The Commissioner of Agriculture and Immigration is authorized to appoint a competent State Apiarist who shall work under the direction of the State Entomologist.

The law cites the usual stipulations prevents the movement of bee equipment from premises where bee diseases exist and makes quarantine area extending in three miles in any direction from any infected bees.

Owners of box hives within such zones are obligated to transfer to movable comb hives. Another provision of the law is that by July 1, 1940 all bees in stationary comb hives must be transferred to movable comb hives.

Care has been taken also to protect state beekeepers against importation and exportation of bees without legal permits and without satisfactory inspection.

Copies of the law may be obtained by writing to the Department of Agriculture and Immigration, at Richmond, Virginia. The State Entomologist in charge is G. T. French, 1112 State Office Building, Richmond.

♦

I am employed in a large steel plant and during working hours a man came in and told me a swarm of bees was flying around between two of the large buildings, so I went out and there they were going round and round apparently looking for a place to stop. Just where they came from no one knew. I scratched my head and I sure wanted those bees. I happened to remember a small tree on the other side of one of the buildings so I dispatched a man to get me a small limb off that tree while I watched the bees. He was back in double quick time and so I took the limb in hand and got right in the middle of that swirling swarm bare headed and bare arms, held the limb up high and waited for results. Well I did not have to wait but a couple of minutes when that swarm began to cluster on my branch. It soon became quite heavy and I had to lower it as it began to get heavy and bend. I was finally holding it at both ends and was covered with bees. During this time I had phoned home for a hive (always ready for such occasions,) which arrived in a taxi with my eight year old son who proceeded to help finish up the job. That evening I took the bees homes. The swarm weighed about six pounds, built up nicely and produced one hive body of fall surplus. So I will know what to do if I see a swarm out in the open again.

Chas. A. Hoopes,
Ohio.

until our bread has lost all of its life giving elements. Because one feels little immediate effect from eating these refined foods, they have come into almost universal use. Numerous deficiency diseases have become very common and the public spends a large part of its income in a hopeless search for relief through medicine and surgery when all that is needed is to restore a diet complete in all essential food elements.

Dr. Beck has rendered a great service to the honey producing industry as well as to the public in general, in calling attention to the importance of honey as a food. The seventeen minerals which it contains are lacking in refined sugars. Recent research indicates that our southern friends have the advantage in mineral content in their dark colored honey.

One is warned that honey is a highly concentrated food and that it is easy to eat more than is good for one. In fact, that is the common habit of the present day when gorging is the rule. Taken in proper quantity honey is a natural and suitable food, which combined with other needed items, does much to keep the individual in health.

———ABJ———

More Appreciation for the Honeybee

MORE and more is the public coming to recognize the importance of the honeybee as a pollinating agent. H. L. Seaton and J. C. Kremer, of the Department of Horticulture Michigan State College have recently investigated the work of honeybees in the pollination of cucumbers. In plants grown in screened cages to prevent the visit of the bees only about three fruits were set to each 1000 flowers. Field plants to which the bees had free access produced 857 per cent more fruit than those from which the bees were excluded.

So many similar experiments have been recorded that we find in many neighborhoods a very real anxiety to have beekeepers locate where the bees will be within flying range of orchards and gardens as well as field crops.

———ABJ———

The Weather

THE copious rains that have fallen over much of the drought-stricken area of the Midwest have brought great rejoicing to that region. Rain was general over a very large area and few spots remain which did not get moisture in time for the starting of spring crops. Thus prospects have greatly improved within a few weeks' time.

It will take many years to repair the injury to the region. Many farmers have given up and sought a haven in some new location; and trees which require a lifetime to grow have died from the drought. In some sections most of the groves are dead or badly injured and elderly people cannot hope to live long enough to replace their trees.

However, nature makes a quick recovery and already grass is covering many of the scars. If rains continue, the area will shortly be in a happy condition again. The greatest change appears to be

in the state of mind of the people. With the coming of rain an optimistic frame of mind in the average individual was immediately apparent, and everybody prepared for action in some direction.

How dependent we are upon the weather. Wind, hail, frost or floods may destroy the fruits of our toil within a very brief time. When nature is kind all our efforts are blessed with abundant increase; when conditions are adverse nothing that we can do will save us from grievous disappointment.

There are those who contend that we are just passing the turn in a forty-five year cycle during which we have been on the dry side. If they are right and abundant rainfall is to be our portion for a similar period, we can look forward to the seeding of a larger acreage of legumes than this region has seen at any time in the past. The result will be a vast increase in the available bee pasture. If this comes to pass there will be less necessity of seeking pasture in far places. There will be ample room for all.

—ABJ—

The Lowly Dandelion

IT is fortunate for the beekeeper that the dandelion is so well equipped to look out for itself. Perhaps if it were not quite so persistent it might be more popular but its wide distribution is a boon to American beekeepers. As an early source of honey and pollen it ranks near the top and in many localities it provides the principal source of spring stimulation.

To the writer (perhaps because he is a beekeeper) there is no more beautiful sight than a wide expanse of grassland studded with millions of yellow dandelions. Prosperity rules in the apiary when dandelions are in bloom.

—ABJ—

This Season Hard on Queens

SOME beekeepers practice requeening their colonies every year, others every second year, while still others let the bees do their own requeening. Whether or not a queen can survive for the second season and produce good, strong, vigorous colonies, and at the same time have her brood so uniform as to obviate the desirability for swarming is a question.

Naturally, the availability of the queen for future use depends largely upon the amount of egg laying she has been subjected to. Seasons like the present one promises to be—starting with a fairly early spring and continuing to demand a honey producing force throughout the entire spring and summer—are likely to call for all the best qualities of a best queen to make maximum colonies.

Under such conditions, there is no doubt that by the end of the season many good, vigorous queens will be beyond their prime egg-laying possibilities. What we mean to infer, therefore, is that if the beekeeper is to be forewarned and if he wants to have his colonies in best shape for the 1939 season, he ought to pay some attention to the vigor and egg-laying abilities of his queens this summer and early fall.

Any signs of diminution in productivity should cause serious consideration of replacement of old queens by young queens. For this year looks like one in which requeening will pay and pay well, if we want to have our capital outlay in the best of shape for carrying colonies into winter and for their building up next spring.

Our honeyflow from mesquite and catsclaw has ended, and altho I got a good crop it is not as large as it would have been had not my largest apiary, comprising more than half of my colonies, been seriously damaged by poisoning from cotton dusting late last fall.

Owing to the severe drought there was nothing for the bees to build up on after that, and it was little better this spring.

The nearest edge of the cotton area was four miles away, and while I knew that there was a considerable flight of my bees in that direction I was led to believe that they were not going that far, as I had investigated twice shortly before the dusting and found no bees working along the edge of the field nearest my place.

The dusting was done by plane in the early morning and by noon there were dead and dying bees all about the apiary, and I suppose that a still greater number never got home. All of the unsealed brood was killed and some of the sealed brood was chilled, as there were not enough bees left in some of the colonies to care for the large brood area. After that all the queens stopped laying and some of them did not lay any more until spring. Owing to the danger of robbing the colonies could not be kept open long enough to hunt up the queens, so I had no way of knowing how many of them had died, which caused me considerable anxiety. Later there was much robbing in the apiary, which resulted in the loss of a number of colonies through starvation.

As a rule, the beekeeper gets little sympathy from the cotton gowers in such a case. When I told the wife of one of the growers that my bees were dying by the hundreds of thousands as a result of the dusting she laughed and said that she "guessed that I would have to shut my bees up and keep them at home."

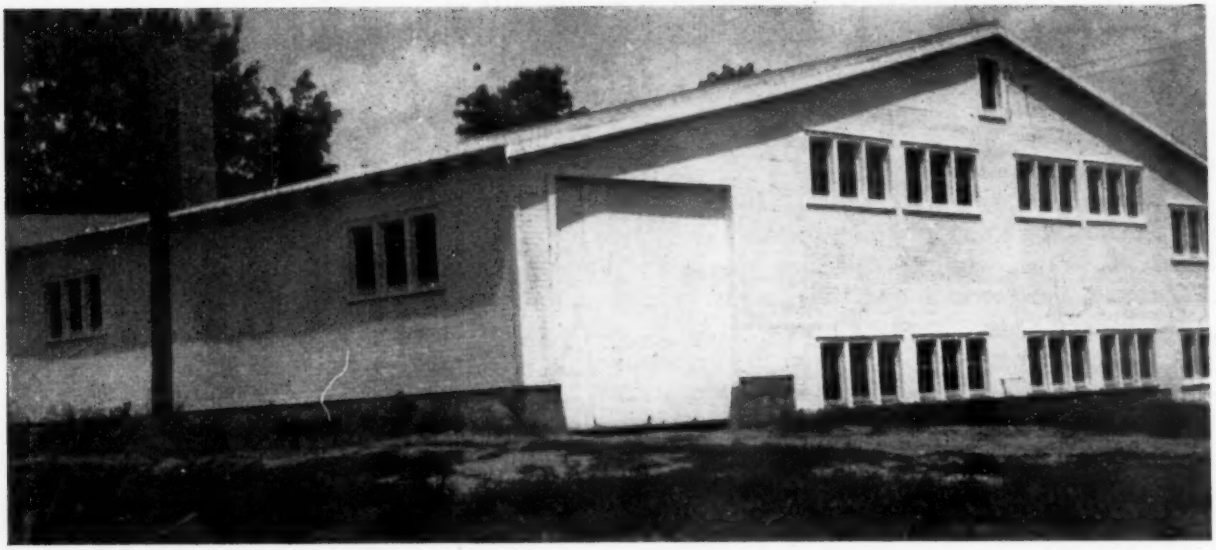
I am planning to move all my bees many miles away long before there is any likelihood of any dusting of the cotton this season, because the growers are not even required to give notice of their intentions of dusting, and even if they were there would probably be insufficient time allowed for the removal of several hundred colonies. H. E. Weisner, Arizona.

♦

In connection with A. B. Hamlin, of Macon, Georgia, I am operating quite a few colonies in southeastern Georgia, where we are building up a volume in order to enter the package business.

For over ten years, I was connected with the Georgia Entomological Department. In 1936, I headed that department as State Entomologist.

J. H. Girardeau, Georgia.



Howard Potter's central extracting plant, showing entrance to covered driveway.

A Michigan Honey House

By Howard Potter,

Michigan.

IN my central extracting plant the equipment has been planned to make all work progressive and to eliminate handling and rehandling. The building is of a size to accommodate considerable extension of our present activities and so to provide well for future crops. Therefore, it will not be necessary to add to the original plant as the present building has been calculated to take care of the output from a thousand colonies of bees and we have now between seven and eight hundred.

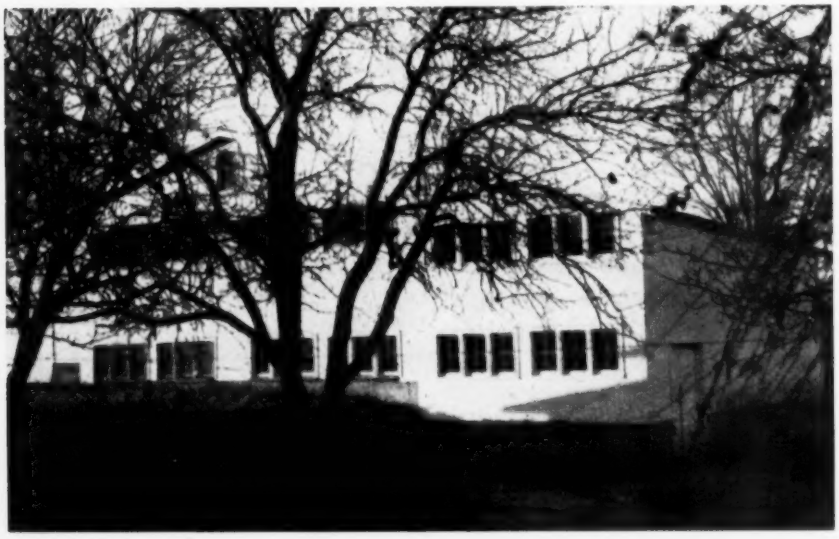
The arrangement of the building is very simple. It is divided into two floors with a covered drive and unloading dock serving the upper level which accommodates the extracting equipment. As the upper floor level is the same as that of the truck bed, standing in the covered driveway, full supers may be piled on skids on the truck and a lifter truck shoved under the skids to move the stacks of supers to the uncappers.

The extracting quarters are floored by matched hard maple one and three-quarters inches thick. In the extracting room are several features which, while not unique, will be of interest. There are two 50-frame radial extractors, each with a long uncapping tank running up to it. The uncapping tanks are equipped with little scooter cars, each holding the uncapped combs from one super. We like, if possible, to get the same combs back into the supers from which they come. These scooters slide easily on rollers or castors up to the extractors.

Uncapping is done into cappings baskets where they are whirled dry. Near one wall is a hole in the floor through which dried cappings are dumped into the basement for rendering.

The steam boiler is located in one corner at one end of the covered driveway.

The lower floor may be reached from the covered driveway but is served principally by another truck-level loading-out door and dock provided for convenience in handling out loads of honey. The lower floor accommodates storage tanks and cans in one room, a wax rendering and lye boiling outfit in another, and space for grading and packing comb honey in another. The source of power is also in the basement.



South side of honey house, showing drive to lower floor.

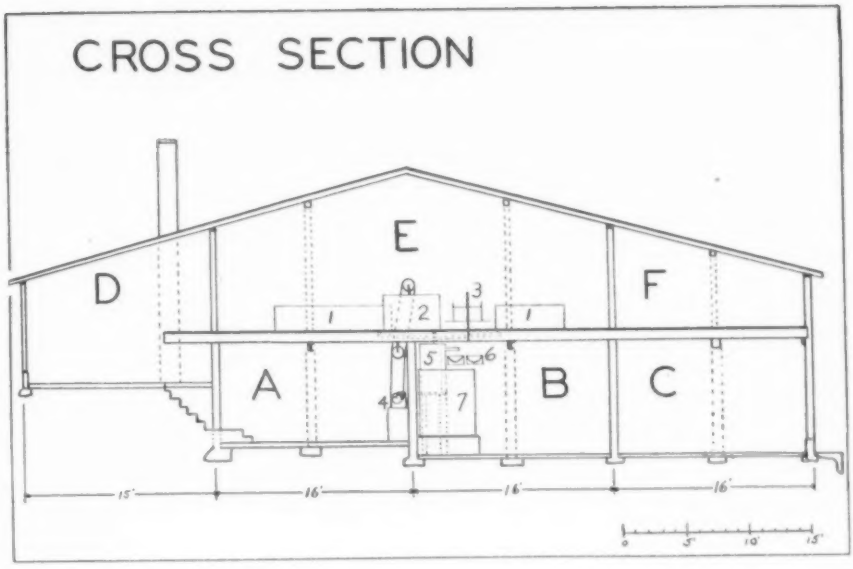
We use a gasoline engine for extracting power, although we have both 120 and 220 volts of electricity on hand. We got started with the gas engine years ago, using the Fairbanks-Morse Z type 1½ H. P. It has been used for eight seasons with very little loss of time or expense due to power failure. It is fairly economical, hardly using a gallon of gas in a day's work, keeping both extractors going for ten or twelve hours.

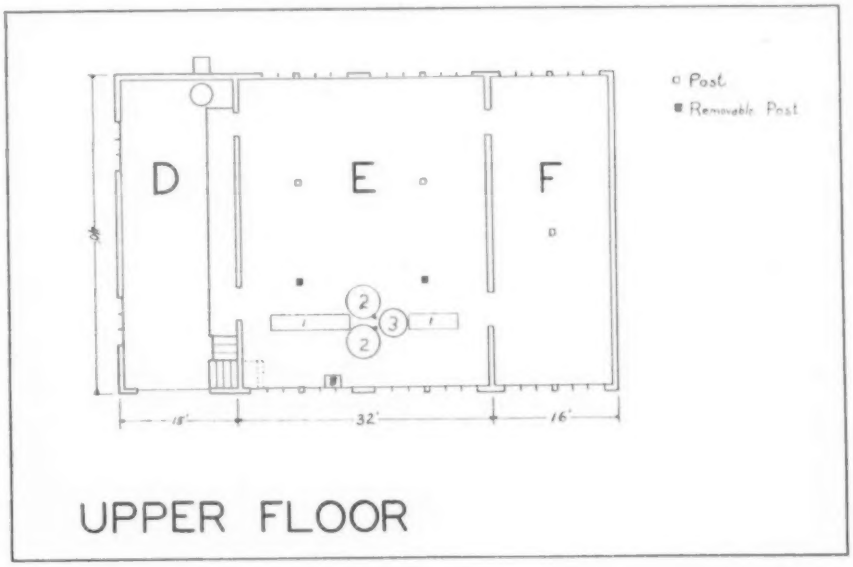
The gasoline engine has an advantage in that the speed of the line shaft can be varied simply by moving the regulator lever of the governor. By changing this speed to get the one most favorable for the temperature and the age of the combs being run, we do a good job of extracting over quite a wide range of temperatures. There are flexible coupling extractor drive shafts, one pulley belted to the power through a hole in the floor between the extractors.

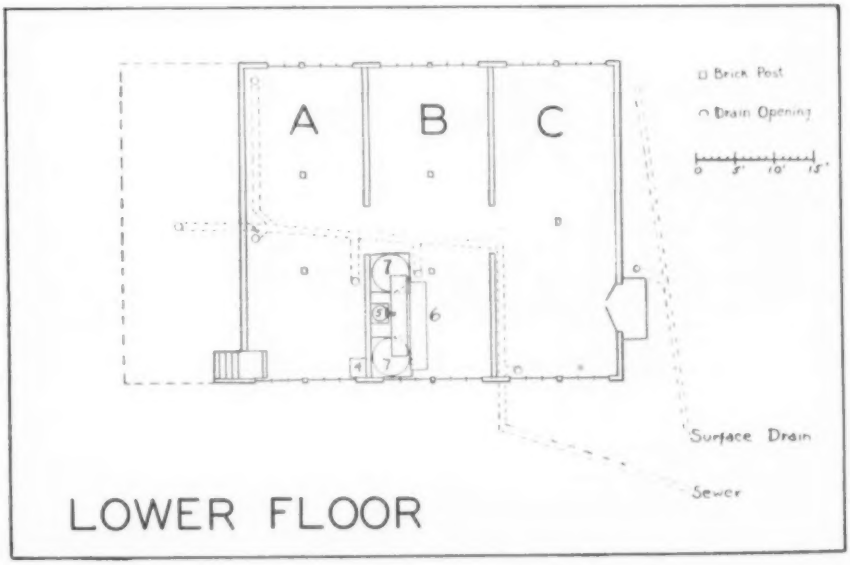
I like the fact that the gasoline engine furnishes just about the right amount of warm water to warm up the honey as it comes from the extractors. It makes a difference of about 10 degrees. The honey in the combs is at 70, it goes into the strainers at about 80, and that is quite a help, since the honey goes through a fine grade of cheese cloth. This mild heating is not injurious. The heat transfer is accomplished by circulating the water from the cylinder jacket of the engine through a copper coil in the hundred-gallon tank. The circulation is maintained by an old honey pump.

Since there is much publicity given to the prevalence of dirty honey and I have very strong sentiments about it myself, it may not be out of place to describe this tank and its part in an arrangement which is capable of giving clean honey, while keeping up with the output from two 50-frame extractors.

All the honey from the extractors and capping tank goes into a separator tank directly beneath the extractors and is simply a hundred-gallon, round honey storage tank with an overflow pipe soldered in one side about six inches from the top. A narrow baffle plate is soldered across the side of the tank and extending almost to the bottom so the honey must flow to the bottom of the tank before it can get out of the overflow. Since the tank is large enough to hold the honey extracted in an hour's time, all the honey is about an hour passing through the







Key to elevation and floor plans at right.—A, wax rendering and lye-boiling room; B, tank and can room; C, comb honey room; D, driveway, garage, and boiler room; E, extracting room and comb storage; F, comb storage and cut-comb room. Key to arrangement of equipment.—1, capping tanks; 2, extractors; 3, merry-go-round; 4, gasoline engine; 5, separator tank; 6, strainers; 7, storage tanks; 8, cappings chute.

Arrangement of extractors and capping tank. A load of uncapped combs is on the scooter cars, ready for the extractor.

tank, which gives time enough for most of the bits of wax to float to the top, thus holding them back from the cloth strainers.

As the honey comes from the separator tank, it goes into the strainers which are of cheese cloth, coarse enough to allow good honey to pass through under 100 degrees temperature. The cheese cloth, about three by ten feet, is supported by one inch mesh chicken wire hung hammock-like over a galvanized iron tray touching the bottom in the center. The tray is made by turning up 8 inches on each side of a piece galvanized metal 36 by 120 inches. The whole strainer tray is enclosed in a wood frame and suspended from the ceiling. A sheet metal pipe conducts the honey from the tray to the storage tank where an inclined trough is provided to prevent the stream of honey from going straight down and gathering air bubbles.

The "merry-go-round" device indicated in the floor plan (room E). Uncapped frames can conveniently be stacked on it.

Two strainers are used. When one gets full, the honey is led into the other, giving the first one time to drain. Usually the second strainer lasts the rest of the day. Such strainers must be clean and wet. Honey will not go through a cloth which is soaked with honey and allowed to stand empty for a time, as is the case when a full strainer has been left to drain itself.

The separator tank gets most of the wax particles, which greatly increases the amount of honey that will go through a strainer before it becomes too clogged to handle the stream. However, crystals of granulated honey pass through the separator and quickly stop a strainer. These crystals come from brood nests that are extracted following the use of the Demaree method of swarm control. We are gradually quitting this plan.

A device for draining the honey out of a clogged strainer is worth special comment. It is made of two elbows, two nipples, and a short piece of pipe which, when screwed together, make a zig-zag shape, with the possibility of swinging the ends around the nipple between the two elbows. The end nipple is soldered, pointing down through a hole in the bottom of the tray. The short piece of pipe sticks up through the chicken wire and through a sleeve sewed in the cheese cloth. Thus, while it is in a vertical position, no honey can go through it. When it is desired to empty the strainer, a 50-gallon tank with a clean strainer fastened across the top is set under the hole. The pipe is then turned from a vertical to a horizontal position which sinks it to the bottom of the strainer and lets the honey run out. This should be made of 1½ inch pipe.

Lifting a stack of supers on a skid by means of a lifter truck.

Cut comb honey is handled mostly in the extracting room, because the drying must be done in an extractor. Comb honey is handled on the lower floor in a special room, since preparing eight to ten thousand sections for shipment requires considerable space. Also, in this room, queen excluders and extra covers and bottoms are scraped and reconditioned during the winter. Storage tanks take care of the extracted honey where it is drawn into 60-pound cans. Some of it is put in smaller packs.

Conversation With Farrar

Dr. C. L. Farrar, now in charge of the new North Central States Bee Culture Laboratory, told us something of the set-up at Madison, Wisconsin. One of the principal problems to be studied there is commonly called supersedure. Normal supersedure is not the type of loss which occurs in the case of many packages and queens sent through the mail. Dr. Farrar prefers to call this queen loss and says that some of the contributing causes are (1.) due to shipping and introduction; (2.) faulty queens; (3.) colony conditions, i. e., life of the package population, honey and pollen supply (the pollen supply is often left to chance conditions, which makes weather an important factor); (4.) accidental killing of queens during hive manipulation.

A new method of introducing packages has curtailed loss during introduction. This is the spray method described in Circular E-427, April 1, 1938, published by the Bureau of Entomology and Plant Quarantine, U. S. D. A. This method saves from 3 to 3½ days' time required for the queens to begin laying. With the new method of introducing packages the queens usually begin to lay in less than 24 hours.

Dr. Farrar also stressed the importance of plenty of pollen. Package bees started in bad weather and without plenty of pollen will usually go to pieces. He has installed packages under winter conditions with normal brood rearing resulting. He also reported three lots of packages which were installed with pollen the latter part of April and early May which developed brood normally under adverse weather conditions, while another lot established without pollen lost 33% of the queens and had less than half pound of bees with practically no brood by the first of June. He has estimated that a colony of bees may require 60 pounds of pollen a year. This is roughly equivalent to thirty pollen clogged standard combs.

In wintering, the surviving population in the spring is directly proportional to the amount of pollen stores. A colony of bees should have 500 to 600 square inches of pollen for wintering purpose. Colonies which do have a store of reserve pollen are stronger in the spring and take better advantage of early flows. He reported colonies which replaced the amount of stores consumed during the winter on a dandelion flow while colonies which did not have sufficient pollen, did not show a gain in weight.

He then stressed the importance of large populations in honey production, stating that production of honey increases as the population increases. For example, one colony with sixty thousand bees will produce more honey than two colonies having thirty thousand bees each. To this end, the two queen system described in Gleanings, was originated. The use of this system also causes a greater amount of pollen to be stored. About four weeks before the end of the flow, one queen is eliminated by placing the top brood chamber with the lower one. Since one queen is eliminated, there are twice as many bees to collect pollen and only one queen's brood to feed. Farrar also states that a queenless colony is one which will clog combs with pollen. The two queen colonies may enter the winter period with as much as 80% more pollen than a single queen colony.

He cited the results of a commercial beekeeper who had an average of 200 pounds for single queen colonies while two queen colonies produced from 500 to 600 pounds per colony. Dr. Farrar concluded that (1) A colony cannot be too strong in bees during a honey flow when properly equipped, and (2) To prepare for this populous condition, it takes a lot of pollen.

—ABJ—

Anywhere in the Middle West

This picture, taken by James Dadant, south of Warsaw, Illinois, represents clover as it has been in many parts of the Middle West this year. White Dutch clover, alsike, white and yellow sweet clover have produced a crop of honey which is the best in a number of years; honey that is of good body, light color, excellent table grade, and we hope will command a fair price on the market.

Of course, crops like this make beekeepers optimistic. They begin to look forward to increasing their business and to the possibilities of a more reasonable return from their efforts than they have been able to obtain in the years just past. Probably no other farm occupation is more easily turned into enthusiastic optimism or cast down into depression than beekeeping, since it depends so much on seasonal conditions, on weather, rainfall, bloom and colony strength. When all of these are at their best, we get those years of bumper crops which bring about a period of expansion to be followed again by a recession when conditions become unfavorable.

This field of clover is one of the best we have seen this year. If it were possible to keep bees in a location where this amount of bloom and proper nectar secreting conditions could be depended upon every season, beekeeping would rapidly assume a sound commercial aspect. Then marketing would, in turn, emerge from its present chaos into an orderly process which would put beekeeping on a par with the more desirable agricultural occupations.

After all, there is no substitute for a good location. It has often been said that a good beekeeper can produce a crop when a poor one fails. It might be said too that a handful of bees will produce a crop when the location is right and then the good beekeeper produces a bumper crop. Some have advanced the opinion that perhaps white Dutch clover is a thing of the past. This year disproves that notion.

Is There a Best Race of Bees?*

By Dr. O. W. Park,

Research Associate Professor, Iowa Agricultural Experiment Station, Ames, Iowa.

THAT the honeybee, **Apis mellifera,** did not exist on the American continent until brought here by Europeans appears to be news to most beekeepers. Honeybees were introduced into New England in 1638 probably from Holland (1). Subsequent importations established this stock in various parts of the eastern seaboard. These bees were known as black bees and their race was first to become established in the New World.

As civilization spread westward the honeybee kept pace and frequently preceded it. As a result early settlers who established new outposts often came to the erroneous conclusion that the honeybee was native there. Thus the so-called common or black bee established itself widely throughout North America without a rival.

One very suggestive bit of evidence that honeybees did not exist in America before its occupation by Europeans is the fact that there was no word for honeybee in the Indian language. To the Indians this insect became known as "the white man's fly."

Within ten years after Langstroth invented the movable frame hive the first importations (2) of bees from Italy were made. Modern beekeeping was then in its formative stages and progressive beekeepers were beginning to look for a race that might prove superior to the common black bee, which at that time was the only one available in this country. Besides the greater attractiveness of the brighter colored Italian bee, this race soon demonstrated its superiority in combatting the wax moth which often succeeded in making serious inroads on colonies of the black bee. Moreover the Italians were found better adapted to the movable frame system of manipulation because they were more quiet on the combs and did not "run" as did the blacks.

Finding favor with the more enterprising beekeepers of America, the Italian bee soon became firmly established here, but not until after the turn of the century did it come into the all-but-universal favor it possesses today. The change came about in this way. European foulbrood had become a serious scourge, wiping out entire apiaries almost before the beekeeper was aware that anything was wrong. A decade or more passed during which various methods of treatment were tried with little or no success, until finally it was discovered that on the whole Italian bees were less susceptible to this disease than were the blacks. In fact certain strains of Italians were found quite resistant to European foulbrood. As a natural consequence, beekeepers either Italianized their apiaries or automatically went out of business. From that day to this their popularity in this country has been undisputed.

Let no one think, however, that black bees have no redeeming features, for they have. They are good honey gatherers and for whiteness of finish on comb honey, they have no superiors and probably no equals.

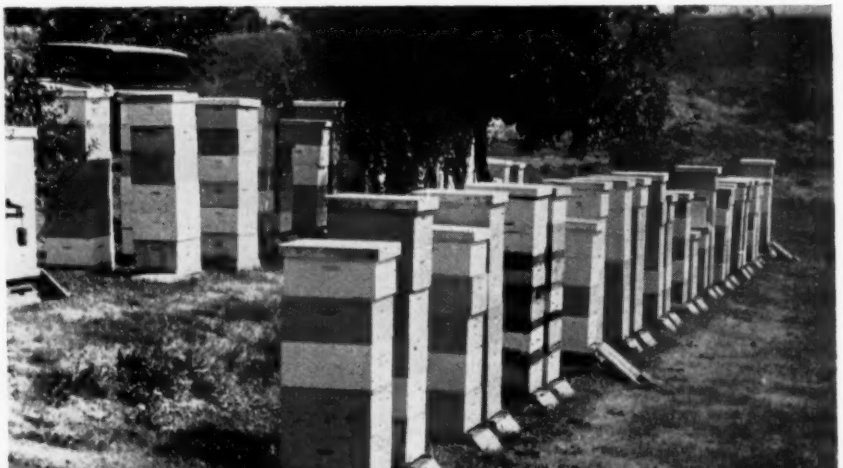
Both Caucasians (3) and Carniolans (4) were brought to this country soon after 1880. Each of these races secured a meager following in this country and each has continued to have a few loyal supporters to the present time, but neither can yet claim widespread popularity.

Numerous beekeepers have felt that neither Caucasians nor Carniolans have been given an adequate trial in this country. While some have appeared to be satisfied with the Italians, others have considered it possible that Caucasians or Carniolans might prove more successful under adverse environmental conditions. At the request of the Iowa Beekeepers' Association comparative studies on the three races named above were undertaken in 1931 and continued through 1936.

General Procedure

Twelve colonies each of Caucasians, Italians and Carniolans were established at the Ames apiary of the Iowa Agricultural Experiment Station during the season of 1931. Direct importation of queens for this study was considered but the difficulties involved appeared to outweigh any probable advantages to be gained thereby, so stock was obtained from American breeders of recognized standing. All colonies were requeened annually. Usually stock for requeening each race was obtained from two different breeders, but in the case of the Carniolan race this was not practical.

An attempt was made to keep all colonies strong and in the best possible condition at all times and for



Apiary where comparative tests were made. First twelve colonies, front row, Italian; next twelve, Caucasian. Rear row, Carniolan.

*Journal Paper No. J471 of the Iowa Agricultural Experiment Station, Ames, Iowa. Project No. 139.

the most part this standard was maintained. In general, routine manipulations were practically alike for all, but considerable attention was given to special needs of the individual race and colony. In other words, no attempt was made to operate all three races in exactly the same fashion, but rather our efforts were directed towards adapting our manipulations to the needs of the different races insofar as it was possible to discover how to do so.

Double brood chamber ten-frame Langstroth hives were used. The queen had the freedom of both hive bodies during the winter and throughout the spring. As a rule the positions of these two units were interchanged at intervals of seven to ten days during the spring. This together with destruction of queen cells and the giving of supers well in advance of their need is believed to have reduced swarming to a comparatively low level if not to a minimum. Whenever a colony persisted in preparations for swarming, it was given the Demaree treatment.

Queens were clipped largely for identification purposes—on the left side if reared in an odd numbered year, or on the right in an even numbered year. A bright colored spot of paint was placed upon the thorax of queens of the two dark races so they could be found more readily.

On a few occasions, weak colonies were strengthened by giving them a few combs of brood and bees from stronger colonies of the same race and group. This was considered not only permissible but advisable since it is good beekeeping practice and since results are interpreted principally in terms of group averages rather than individual colony performance.

It was recognized from the beginning that it is a practical impossibility to conduct a highly controlled and scientifically sound experiment wherein three races of bees, three breeds of dairy cattle or any other groups of animals which differ constitutionally from each other, are to be subjected to comparative tests. Yet it was believed that information of real value could be secured through intimate contact with these races and by compiling data thus obtained upon their various desirable and undesirable traits. No claim is made that results reported herein are dependable beyond question, nor that they would be duplicated in any future series of observations. It is believed, however, that in the main the results reported here should give beekeepers a reasonably substantial picture of what may be expected from each of these three races of bees under Iowa conditions.

Five Years of Studies

Most of us are familiar with the fact that there are various strains of Italian bees, each differing from the other in gentleness, color, resistance to disease or other characteristics. Let us remember that the same thing applies to the other races also. The fact that one man's experiences with Caucasians, for instance, do not agree with those of another, does not necessarily mean that either one is wrong. Instead it probably means that two different strains of Caucasians are under consideration. It is important to keep this point in mind throughout any discussion of races of bees.

Certain traits of bees may be measured in exact terms while others cannot. For instance, the amounts of honey produced in a season or consumed in a winter are measurable and may therefore be set forth in mathematical terms; but, unfortunately, certain characteristics such as disposition and the propensity to use excessive amounts of propolis cannot be recorded in such exact terms. Thus the personal factor enters the picture, accompanied by controversial possibilities.

Since it is our aim to reduce controversial topics to the irreducible minimum, we wish to state at the beginning that data and observations reported herein refer specifically to certain well known strains which may be designated as Caucasian A and Caucasian B, Italian A and Italian B, and Carniolan A. Data and observations given may or may not be representative of other strains of a given race. Therefore statements made herein are not to be taken as generalizations with respect to any race.

Honey Production

The amount of honey produced by each colony was determined in the following manner. All colonies were weighed at the time of removal from winter packing cases in the spring—usually about the tenth of May. They were weighed again in the fall when put into winter quarters—about the middle of November. Thus any change in the weight of the double brood chamber during the summer was shown. This figure combined with the net weight of honey extracted from each colony was taken to represent the amount of honey produced by that colony during the season.

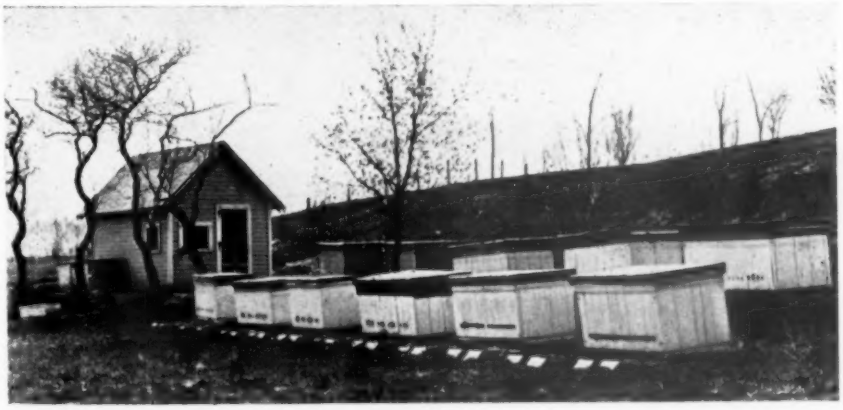
No attention was paid to the weight of the empty supers given, but whenever a super of honey was removed, its gross weight was credited to the colony which produced it. Later the net weight of honey extracted from each super was found by deducting from its gross weight the average weight of an empty super as determined from all the supers extracted during that run. Since the results sought were comparative rather than absolute, this procedure for determining the amount of honey produced by each colony was considered sufficiently precise for the needs of the case, yet it had the advantage of not being burdensome to carry out.

Table 1 shows annual average production for each of the three races from 1932 to 1936 inclusive. In the five year averages it may be observed that the Italians led the Caucasians by a margin of 29 pounds or 25 per cent, while the Carniolans led the Caucasians by 56 pounds or 47 per cent and surpassed the Italians by 27 pounds or 18 per cent. Thus the Carniolans have shown marked superiority as honey producers.

The Caucasians failed to rate first place in average production during the period of this study. They placed last in three seasons out of the five. In 1932 they held second by a lead of only 2 per cent over the Carniolans, while in 1936 they tied for second with the Italians.

The Italians twice ranked first in average production, leading by margins of 5 and 9 per cent, respectively. Twice they ranked second by margins of 10 and 14 per cent, respectively, and, as noted above, once divided honors for second place with the Caucasians.

The Carniolans started in third place, advanced to second the follow-



Bees of the three races in winter quarters.

ing season and then took the lead which they kept throughout the remainder of the series. Even in 1932 when they ranked third, they produced 93 per cent as much honey as the Italians and 98 per cent as much as the Caucasians, on the average. When they ranked second in 1933, the Carniolans produced 90 per cent as much as the Italians and 18 per cent more than the Caucasians.

The highest average annual production was held twice by the Italians and three times by the Carniolans.

The comparison of highest yields for single colonies, given in table 2, may not carry any particular significance but is considered of interest. In 1932 an Italian colony led the best producers among the two other races by margins of 7 and 31 per cent over Caucasians and Carniolans, respectively. In each of the next three seasons, a Carniolan colony led the nearest competitor from another race by margins of 24, 58 and 7 per cent, respectively. In 1936 the highest single producer was of the Caucasian race. It held a lead of 16 per cent over the best producer among the Carniolans and 21 per cent over the maximum yield made by an Italian colony. The highest production recorded for any one colony during the five year period was 412 pounds, made by a Carniolan colony in 1933. Highest individual yields made by the two other races were almost identical, being 332 and 333 pounds, respectively, for Italians in 1933 and Caucasians in 1936.

The ten highest producers each season were distributed among the three races as shown in table 3. If the totals listed for each race be taken as percentages of the entire fifty possibilities, we find that during the five year period 20 per cent of the ranking positions were held by Caucasians, 32 per cent by Italians and 48 per cent by Carniolans.

It has been mentioned already that in the five year average the Carniolans led the Italians by a margin of twenty-seven pounds and the Caucasians by fifty-six pounds. If the wholesale price of extracted honey be taken as 6 cents, the annual gross receipts from the average Carniolan colony was $1.62 greater than from the average Italian and $3.36 greater than from the average Caucasian colony.

While it is conceivable that under commercial apiary conditions the differences in production among these three races might be less than those found in the present study, it seems improbable that they would be reduced so greatly as to cause them to become unimportant to the consideration of the question as to which race of bees is best adapted for the production of honey under environmental factors such as exist in central Iowa.

Wintering

All colonies used in this study were wintered in four colony packing cases made of lumber, in which all four colonies stood side by side facing one direction. Not less than 4 inches of packing was used beneath the hives, from four to six inches around the sides and eight to ten inches on top. Mill shavings were used exclusively as insulating material. The three groups of twelve colonies each were located close together on two terraces near the foot of a hill having southeast exposure. Thus they were reasonably well sheltered from the prevailing northwest winds of winter. All colonies were weighed just prior to being placed in the packing cases and again just following their removal therefrom. The loss of weight for the period was taken as the measure of stores consumed. Several sources of small errors could be pointed out in this technique but they would be difficult to eliminate, and since they are present in all cases they do not invalidate the data for purposes of comparison among the races.

Economical Use of Winter Stores.

Data on time of packing and unpacking are listed in table 4 together with the average weight of stores consumed per colony during the period spent in winter quarters. As may be seen the average weight of stores consumed fluctuated greatly from season to season and to a less extent among the three races in a given season. These figures substantiate the general proposition that bees consume more stores during a mild winter, such as that of 1933-34, than during a severe winter such as 1935-36. It may be observed also that average consumption per day was always greatest for Caucasians and least for Carniolans. Italians occupied an intermediate position consistently. Their consumption averaged only 3.5 per cent above that of the Carniolans, whereas the weight of stores consumed by Caucasians averaged 13 per cent more than that of the Carniolans.

The one pound more of winter stores used by the average colony of Italians, or even the four pound increase in consumption by Caucasians over the amount required by the Carniolans during the average winter period may not appear important on the basis of single colonies, but apiarists who count their colonies by thousands or even by hundreds can well afford to consider any item of economy which promises to effect a saving of 13 per cent or even 3.5 per cent.

Freedom from Winter-Killing.

Winter losses in many cases may justly be charged to the carelessness of the beekeeper but not always. In order to obtain data of real value upon the hardiness of the different races, it would be important to subject all of them to severe winter conditions with little or no special protection. But such experimentation should be conducted as a special study and not in connection with a general study of numerous other traits as in the present case. As may be judged from the description already given of the method used in wintering the colonies in this experiment, considerable care was used to insure them against preventable winter losses. Hence colonies which failed to winter under such favorable conditions might be looked upon as incapable of withstanding the rigors of Iowa winters.

(Please turn to page 377)

Table 1. Honey Production Averages

Season	Caucasian	Italian	Carniolan
1932	168.6 lbs.	177.7 lbs.	165.2 lbs.
1933	208.0 lbs.	267.0 lbs.	244.6 lbs.
1934	105.9 lbs.	116.0 lbs.	200.5 lbs.
1935	17.8 lbs.	20.2 lbs.	22.4 lbs.
1936	148.2 lbs.	147.9 lbs.	242.7 lbs.
5-Year Weight Av.	117.3 lbs.	146.1 lbs.	173.0 lbs.

Table 2. Highest Yield from One Colony

Season	Caucasians	Italians	Carniolans
1932	262 lbs.	280 lbs.	214 lbs.
1933	300 lbs.	332 lbs.	412 lbs.
1934	162 lbs.	192 lbs.	300 lbs.
1935	55 lbs.	39 lbs.	59 lbs.
1936	333 lbs.	275 lbs.	286 lbs.
Average	222 lbs.	223 lbs.	254 lbs.

Table 3. Distribution of 10 Highest Producers for Each Year

Season	Caucasian	Italian	Carniolan
1932	4	5	1
1933	2	4	4
1934	0	2	8
1935	3	4	3
1936	1	1	8
Totals	10	16	24

Table 4. Stores Consumed While in Winter Quarters

Dates			Caucasian		Italian		Carniolan	
From	To	Days	Total lbs.	Per day lbs.	Total lbs.	Per day lbs.	Total lbs.	Per day lbs.
11-30-32	5-18-33	170	35.2	0.207	30.6	0.180	36.5	0.215
10-24-33	4-23-34	181	43.1	0.238	42.9	0.236	39.7	0.219
10-25-34	5-13-35	200	39.2	0.196	34.7	0.173	28.2	0.141
11- 1-35	5- 8-36	189	24.1	0.128	21.8	0.115	20.2	0.107
Averages		185	35.4	0.192	32.5	0.176	31.2	0.170

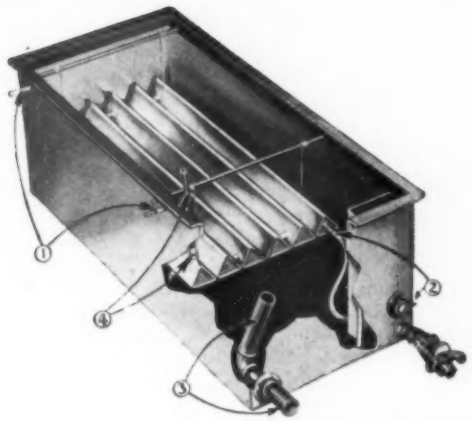
Table 5. Winter Losses

Season	Colonies Caucasian	Colonies Italian	Colonies Carniolan
1931-32	None	None	None
1932-33	None	None	None
1933-34	None	None	None
1934-35	1	None	None
1935-36	None	1	None
Totals	1	1	None

Handling Cappings

By A. G. Woodman,

Michigan.



A type of capping melter into which the cappings are fed from above. Both honey and wax come into direct contact with the heating element.

TESTS show that cappings whirled dry in extractors may contain 40 to 60 per cent of their weight in honey. That is, 1000 pounds of whirled dry cappings may contain 400 to 600 pounds of honey, an amount well worth saving. Also, a recent test made with cappings queezed dry in a press by a producer who thought he had all the honey showed they still contained 38.6 per cent of honey.

So, in quantity honey production, every effort and means should be taken to devise methods of saving all the capping honey and to keep both honey and wax of the highest quality. Here are reports of actual tests to substantiate these conclusions:

Lot No. 1.

Whirled dry cappings from 120,000 pounds of honey extracted, weighed 5610 lbs.

Capping melter honey secured		3120 lbs.
Free wax run off top of liquid mass, clean	1285 lbs.	
Wax rendered from slumgum later	590 lbs.	
Total amount of wax secured		1875 lbs.
Dirt weighed, from slumgum		615 lbs.
		5610 lbs.

This producer states that during the past ten years he has produced approximately 700 tons of honey and in the past whirled dry cappings have been placed in barrels and live steam turned on them in rendering. This means that over 35,000 pounds of capping honey were lost by this producer.

Another report.

Whirled cappings from 45,000 pounds of honey extracted, weighed 1202 lbs.

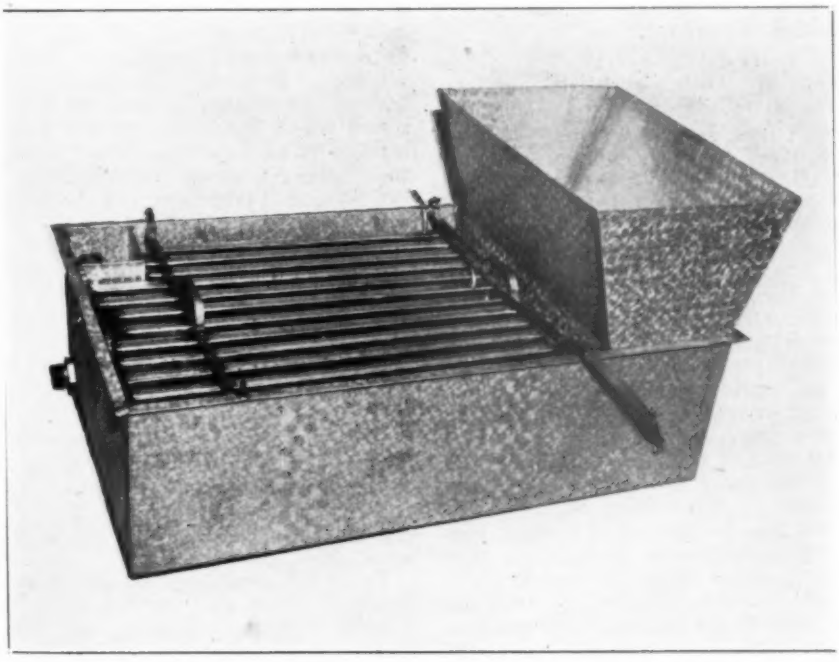
Capping honey secured		502 lbs.
Free wax run off top of liquid mass, clean	523 lbs.	
Wax rendered from slumgum, later	60 lbs.	
Total wax secured		583 lbs.
Dirt weighed, from slumgum		117 lbs.
		1202 lbs.

Still another.

Gravity drained only, cappings from 11,000 lbs. honey extracted weighed 433 lbs. Capping honey saved 237 lbs., free wax run off 101 lbs., wax rendered from slumgum 30 lbs., dirt and honey shrinkage 65 lbs.

One of the pictures here shows a top feeding melter used in these tests on whirled dry and gravity drained cappings. Similar melters have been made and used by numerous honey producers. All top feeding melters, however, have one fault, the discoloration of the honey with slumgum as the honey and wax pass to lower levels. The honey has to pass through liquid wax on top and slumgum under the wax on the way to the bottom of the tank, with considerable agitation and mixing which is not good.

A better piece of equipment is the under the melter feeding type of capping equipment. There is no overheating of the honey because the melter units are kept above the liquid mass and the honey and wax get away quickly to the tank below. The discoloration of honey seems to be due to the slumgum and accumulation as the work progresses. The under feeding melter, shown in one of the pictures here, and now widely advertised, eliminates practically all discoloration from slumgum. The cappings are floated on the top of slightly heated honey, right up to the melter units. The cappings as they flow along under the melter units hold up and push up the accumulation of slumgum. There is no dragging down of the slumgum into the honey. There is little, if any, agitation and mixing, and only a gradual floating away and sepa-



A capping melter which receives the honey and wax cappings below the heating element and which, for several reasons, the author finds the superior device.

ration of wax, slumgum and honey. As the great bulk of the honey is only slightly warm and only the liquid mass on top contacts the heating units, minimum of heat is required.

The continuous honey overflow outlet is set behind a baffle plate and is adjustable. It is only necessary to lift out the melter unit grid and clean it off occasionally. At the end of the day, the finest quality of wax is in cakes and the first quality honey is in the tank, with a complete clean up of the work.

Observations and experience lead to the conclusion that nearly all off color and poor quality beeswax, whether rendered from cappings or combs, is due to slumgum discoloration. That it is relative to the amount of agitation or mixing due to boiling or other undesirable methods. It is known that excessive boiling in galvanized containers will give wax a greenish cast and bare iron will make it black.

Slumgum contains cocoons, pollen, propolis, and fiber as floating particles. When these are agitated and mixed with honey, the wax may cause discoloration. While overheating will discolor honey, excessive heat doesn't discolor clean beeswax.

Old timers will recall in the rendering of the blackest of old combs in the Swiss Wax Extractor, the finest quality of wax was produced. The combs were placed in a wire screen basket so arranged as to catch the drip, and heated with live steam, without agitation or mixing, the wax merely running away. The complication was to remove the large amount of wax left in the slumgum. This led to the development of the Hersheisr Wax Press to get all the wax, but with excessive boiling and mixing and slumgum discoloration, the wax was, of course, of poorer color.

—ABJ—

Go To The Bee

By J. H. Merrill,

Formerly Associate Professor of Apiculture at the Kansas State College and State Apiarist of Kansas.

THE real value of advice depends upon its applicability. When Solomon told a certain sluggard to "go to the ant, to consider her ways, and to be wise," he was giving perfectly good advice for his time and period.

However, times have changed since then. There is no biblical record that anyone in Solomon's time ever destroyed part of a crop for fear of over-production. Shakespeare tells about a man who "hanged himself in expectation of plenty." But, of course, Shakespeare was much more modern than Solomon. Now we have improved on Shakespeare and instead of destroying himself the farmer destroys part of his crop.

Since bees are so wise, how do they handle the situation? Why, they out-Shakespeare Shakespeare, by regulating the size of the oncoming generation or the ultimate consumers. The number of bees to be raised must be proportionate to the amount of food available for its nourishment and to the number of bees within the colony capable of carrying on the business of brood rearing. In other words the destiny which rules the activities of a colony of bees decrees that no additional members shall embarrass the routine of a colony by causing a food or labor shortage.

This sounds ridiculous and would seem to presuppose the possession of a supernatural wisdom on the part of the bees.

Poets and romanticists even as far back as when Virgil wrote his "Georgics" have pictured the utopian life of a colony of bees. But this is said to be a mechanical age and if this is so why cannot we become as ecstatic over the workings of a perfect machine which we can understand as to romanticize over legendary attainments? Such an attitude need not mean that one disparages the object in which he is interested nor that his admiration for its perfection is lessened.

The legend has been that the queen was the central authority and she was given credit for this perfect discipline. Modern investigations have not stripped the old romance from the hive, but have substituted a newer and even more wonderful ideal in its place.

Although bees possess brains and at times exhibit a power of memory, yet their mental processes are not sufficiently developed to account for the meticulous activity of their lives. Rather are they governed by a principle outside of themselves to which they always respond in exactly the same way. Bees have not changed any of their methods of living during all the years that they have been known to man. Man, on the other hand, has by the use of modern bee-keeping equipment changed the conditions under which the bees live and work, but this is as far as he can go. Whenever and wherever the stimulus is exerted, bees mechanically respond to it regardless of geographical location.

Although the rearing of young bees and the gathering and storing of honey seem to be emanations of intelligence on the part of the individual bee, yet this scrupulous observance of the minutiae is rather due to their obedience to the direction of a reflected intelligence, instinct, or what is frequently called "The Spirit of the Hive." Bees are commonly supposed to be models of voluntary industry, and are held up to us poor mortals as examples to be followed. Even in honey-gathering they obey a stimulus outside of themselves which calls them to the field repeatedly until the time comes when their energy is so far spent that they can no longer even return to the hive with their load of nectar. It is an ethical question whether any person or thing should be credited for doing something which it cannot help but do. While the conduct of the bees is exemplary, should not the credit be given to the intelligence which directs them instead of to the insects?

The length of a bee's life depends upon the rate with which it expends its energy. If it had individual intelligence, it would realize that it could prolong its existence by taking rests. This it never does.

Moreover, bees regulate the temperature within the hive not by any intelligent action on their part, but by their body movements. When bees are hungry, they eat, when uneasy, they move about, the amount of their

moving depending upon their uneasiness. When the temperature of the hive is unsuitable or the condition of the air distasteful to them, they begin a fanning movement with their wings. All of these activities call for work, and we learn in Physics that the result of work is heat. As the temperature of the hive nears normal, the amount of energy expended lessens. This is understandable when we realize that bees are cold-blooded animals and cannot rely upon the heat of their blood.

The queen instead of being a ruler is really the most abject slave in a colony. After her nuptial flight she never again leaves the hive unless it should be for a short time with a swarm. Whenever the bees raise the temperature within the hive to the egg-laying point, the queen, like a good machine, automatically commences to deposit eggs in the cells. Now the space within the hive which will have this favorable egg-laying temperature depends upon the amount of activity which the workers manifest. If there is plenty of food, then a large number of bees can consume honey simultaneously and transform this into heat. If the amount of stores is small, naturally fewer bees can eat at any given time and consequently the amount of space within the hive in which there will be a proper brood rearing temperature is correspondingly reduced. Hence, the number of eggs laid in any hive will be proportional to the amount of food which it contains.

The number of eggs which will mature into adult bees has been found to be in direct proportion to the number of worker bees in the community which are available to act as nurses. If it should happen that conditions within the hive caused the queen to deposit more eggs than the nurses could take care of, then the nurses would destroy them. However, if there should be plenty of food it would enable them to maintain a suitable egg-laying temperature over a considerable period and if more nurse bees than usual remained in the hive, there would be an increase in the number of young bees reared. But, as before mentioned, the size of the oncoming generation will be directly proportionate to the amount of food which can be transformed into warmth and the number of bees which can perform the duties of raising young.

In this way, the bees maintain a balance between not only the amount of stores and the oncoming generation, but also between the size of the present population and the oncoming generation. Neither of these results from any individual manifestation of intelligence, but by the stimulus of "The Spirit of the Hive." This could happen only in a community which is governed by a mass principle rather than by a collection of individual thinkers. In fact, it is obedience to this principle which accounts for the idealism of the systematic routine of a hive of bees. If ever an individual bee does individual reasoning on its own part, then the perfection of the community life of the colony will be gone forever.

ABJ

Grafted Queen Cells

By Alfred H. Pering,

Florida.

IT seems to be the general opinion that when a batch of grafted cells is given to a cell starting colony only a limited number of cells will be accepted. It has always seemed to me that there should be some way of increasing the amount of acceptances.

I have tried experiments to bring this about. I made holes in brood combs containing eggs or young larvae and placed the combs in a queenless colony or above a queenright colony removed from the brood nest. Invariably, queen cells were started. I found, however, that the larger the holes in the combs, the more cells were started. To avoid mutilating the combs I broke down the sidewalls of the cells holding eggs or young larvae on one side of the comb and secured increased acceptance, but there was a limit to the acceptance. The bees would accept just about so many. When holes were made entirely through the comb, however, there was a noticeable increase in the amount of acceptance.

After carrying my experience still further, I came to the conclusion that the number of cells accepted and finished is governed by the number of bees available to secrete wax and build cells. When I furnished wax in small pieces to bees during a cell building period, I always got increased acceptance. These small particles of wax were obtained by pressing wax cappings through a sieve, small enough for the bees to use. The cappings were placed on a cover board with a number of holes bored in it. The bees carry the wax down and use it. I secured a greater number of cells than I did when the wax was not furnished.

In addition, I supplied feed for the nurse bees, a mixture of ripe honey and water, with an additional supply of pollen mixed in. I added milk to some of these mixtures. As a result a much larger number of queen cells were accepted than when wax alone was used. Of course, a limit was finally reached in acceptance.

Finally I devised a method of using bottomless cell cups to surround eggs on either side of a selected comb of brood. The bottomless cell cups to be used in this way may be larger and deeper and with thicker walls than the usual cell cup. Also, they can be handled more easily. I used a mixture of equal parts of photographer's white paste, beeswax and propolis, heated just warm enough to stick the bottomless queen cups around the eggs or larvae selected. Care must be used not to injure the egg or larvae and if a good job is not done, the bees may tear the cups away. Using this method, the cells were built larger, and when the wax flakes and the raw food described already are used, the bees will build more and longer queen cells and produce well fed and as good queens as can be produced in quantities.

I finally cut the dipped cells on a slant so that when they were in place on the comb of brood, they hung downward and slant-wise in a natural position just as it is built by the bees. These are placed on both sides of the comb and many fine cells produced. Several of these combs can be used at a time in a queenright cell builder or in the brood chamber of a queenless cell builder. I used every other frame prepared in this way with a comb of brood on each side. A very large number of queen cells thus done were accepted and finished.

Since the method of surrounding the selected larvae or eggs in a comb of brood is wasteful, the use of wood cell bases on a cell bar may be better. I used a frame with a sheet of wood veneer in it in the same manner that a sheet of comb foundation is fastened in a frame, and put three cell bars on each side of the veneer, making six cell bars to a frame. With Modified Dadant size frames, you might put four bars on each side. In my case the frame I used held forty cells on each side or eighty to the frame, and one frame thus prepared in the brood chamber was my limit. The usual assumption is that queens reared in large quantities would be inferior, but remember that the quality of these cells is improved by the giving of the wax and feed in abundance.

Taking Advantage of Climate and Season

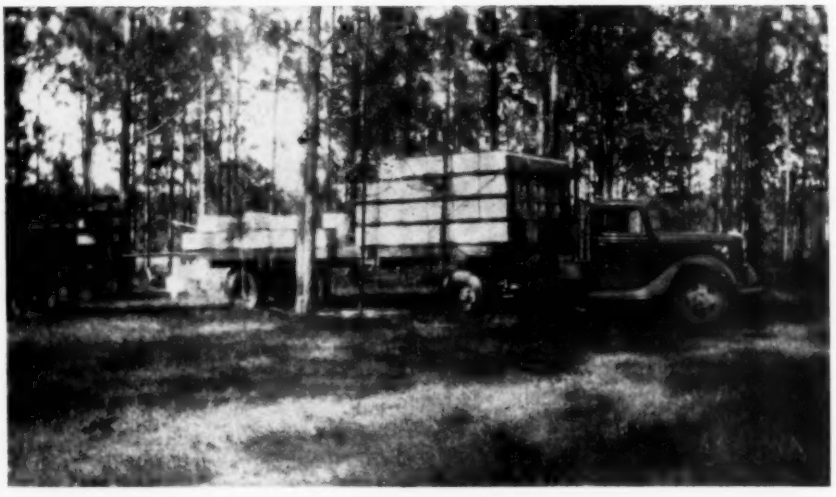
By W. J. Synott,

Tanquary Honey Farms,

Minnesota.

SOME of the best honey locations are beset with management difficulties which make it hard to keep bees continuously in these locations and at the same time have colonies at high productive strength when the honeyflows occur. This problem has been obvious to beekeepers for a long time and they have for the most part taken refuge in package bees as a solution of the difficulty.

In the commonly accepted practice, therefore, package bees replace the losses, the packages being received so that a proper time exists between hiving them on combs or foundation and the beginning of a major honeyflow. Thus at the beginning of the flow each colony so obtained is in fairly strong condition and ready to do a good job harvesting honey.



Unloading nuclei brought from the North for overwintering.

Some beekeepers have not only resorted to the purchase of packages, but have also moved bees to favorable locations where they will be strong in the spring at an early date, and may at that time be moved again to the major honey producing location to give a good account of themselves for another season.

Apiary established in winter quarters near the Gulf.

Particularly in the North there are many difficulties in the major honey producing locations which result from a long unfavorable winter period and a late, slow build-up period in the spring. To overcome these difficulties we have adopted a procedure which may be of interest to others.

During the honeyflow and throughout the summer and fall in the North we remove from the producing apiaries any colonies which may be deficient for any reason at all: poor queens, supersedure, queenlessness, scant population, shortage of stores,

A load of 468 nuclei headed north where empty equipment awaits.

or other causes. This removal of bees from the yards continues through the entire season and the reduction in the number of colonies together with the losses usually experienced in winter brings the total loss in the number of hives with bees one season with another up to an average of about 25 per cent of the number of colonies under operation. This empty equipment will be stacked away, therefore, at the end of the season in storage, ready to be used next year.

This means that only the strongest colonies and those most fit for the winter period will live through in the cellars or packed outdoors in the North. The difficulty has been to obtain enough replacements with a 4500 colony outfit to fill the empty hives in spring. Because we are relentless in the removal of indifferent colonies, the replacements will amount to 700 to 1000 colonies every year.

The author, in one of the northern apiaries

For two or three years we have used a method of filling our empty hives which is promising. At the end of the honeyflow in the fall we choose some of our best colonies to be divided into two or three comb divisions, in compartmented hives, or in special carrying boxes which hold four or five combs. The queenless portions of the divisions are given queens brought from the South.

Divisions are loaded on trucks and taken almost to the Gulf of Mexico where they are unloaded and allowed to grow the remainder of the year and through the early spring period. By that time they are usually overflowing with bees and ready to be reloaded and brought back north to be placed in the empty hives and go through the honeyflow for the season, making up all of the loss of the previous year. Details of the operation are indicated in the pictures.

During the spring of 1938 the bees in the South made a good showing. From each colony in the North we averaged three three-frame nuclei, taking south over 2,000. During the build-up period in the South we also made increase from the original nuclei until we had a total of over 3,000 to carry back for the honeyflow this year. This not only replaced all of the shrinkage of the previous season, but gave us some increase as well.

Wabash Valley Roundup

The fourth annual Wabash Valley Roundup of Illinois and Indiana beekeepers will be held at Newport, Indiana, Saturday, September 10. The program will include the following 20 minute talks:

"What is a Good Queen," G. H. Cale, of the American Bee Journal; "Your Southern Queen," A. L. Webb, of the Calvert Apiaries; "The Simplicity of Beekeeping," Jere Frazer, of the G. B. Lewis Company; "Some Ways to Market the Crop," Professor R. H. Kelty, Michigan State Agricultural College.

There will be a thirty minute concert by the Vermillion Co. Home Economics Chorus. This is one of the best choruses in the state and will broadcast at the Indiana State Fair. There will be a question contest for everyone, a hive nailing contest for women, honey contests, a baking contest, music by the Newport High School Band, and plenty of free watermelon and catfish.

A special feature of the day will be a queen-rearing demonstration by the Newport 4H Bee Club. Every detail in queen-rearing will be explained and demonstrated in their modern queen yard.

This meeting will be not only a roundup but a birthday party as well for Lee Stewart, the host. He says he has lost count, but you can depend upon a real party and a good time.

Rear view of one of the trucks used for transporting nuclei cross country. Evident is the method of loading to permit circulation of air in each direction.

Wax Moths and Their Control

By Prof. Dr. A. Borchert,

Germany.

[Translated by Erwin C. Alfonsus]

THE wax moths appear to be the most dangerous pest in the bee industry. Both moth species, the large moth (Galleria mellonella L.) and the lesser wax moth (Achroea grisella F.), feed on comb, cause other destructions and soiling which in each case present an economic loss to beekeeper.

The imagoes of both wax moth species possess rudimentary mouth parts, do not feed, and therefore do not take part in comb destruction. The females lay their eggs in large numbers on or in close proximity of the combs. From these eggs develop the larvae which cause the feeding damage. Both species infest preferably stored comb but will enter the comb structure of populated beehives. Strong colonies generally free themselves in a short time from these intruders while weak colonies are more or less defenseless and allow the establishment of the wax moths. The lesser wax moth, usually is more successful in entering populated hives than the larger wax moth.

The females of both species prefer for ovi position well protected places, such as cracks, holes and similar crevices. In question come all corners and cracks on the inside of the hive body, the cover, the bottom board of beehives and frames as well as comb storage closets. Even the cells in the combs serve for ovi position. Rarely the eggs are laid on exposed places. The eggs are always deposited in aggregation in so-called packets. The ovi position of eggs single is a rare occurrence. The number of eggs in one deposition is generally large. The lesser wax moth is reported to lay on the average 250 to 300 eggs while similar count with the large wax moth reach 1800. The fairly well hidden egg deposits protect them exceedingly well from disturbances of a mechanical, chemical or thermic nature. Therefore, insecticides often remain without effect and the embryonic development within the egg continues.

After a short time the larvae emerges from the eggs and undergo several developmental stages. During this time they feed on comb and destroy it in a characteristic manner. They soil the combs with webs and feces. The larvae of the large wax moth attack the entire comb structure and construct strong webs which cover a good deal of the wax work. The larvae of the lesser wax moth generally creep along the midrib and construct straight feeding tunnels several centimeters long. The thorough destruction of the comb structure can be explained by the feeding habits of the wax moth larvae which not only feed on wax, but on the pollen containing fecal residue of the bee larvae found between the single cocoons in the cells. These pollen grains are absolutely necessary in the nutrition of the wax moth larvae. For this reason the larvae of both wax moth prefer old comb from which several generations of bees have emerged. Virgin comb does not contain enough proteinic material to allow development. The wax moth larvae develop especially well when feeding on comb containing pollen stores. After the development is completed the larva spins a cocoon and transforms to a pupa. Preferably they seek for pupation places outside the comb such as corners, crevices, narrow spaces, cracks, etc. inside the hive. Rarely they pupate in the comb. Usually a large number of larvae spin their cocoons close together, thus forming a colony sometimes thirty centimeters long.

After 12 to 15 days the sexually mature insect, the moth (imago) emerges. The mating of the moth takes place a few hours after its forth-coming from the cocoon. The egg laying may begin one to two hours later.

Even if there were only a few larvae or imagoes present at the beginning of wax moth infestation there are hundreds of individuals in the next generation which had the comb at their disposal for development. If it comes to the rearing of a third generation two or three months later, there is, as a rule, not much left of the original comb structures.

The loss which the beekeeper suffers consists not only of combs which have been devoured, but there is a loss of wax when the remains are melted. Not to be overlooked is the fact that when later on new sheets of foundation have to be drawn a lowering of the crop results because the bees who engage in the drawing of foundaton cannot take advantage of a honeyflow. Not only the beekeeper suffers a loss from wax moth infestation. Since the German beekeepers cannot supply the demand in beeswax for the various industries which use beeswax, large quantities of beeswax have to be imported from foreign countries every year. The larger the destruction of comb and stored wax by the wax moth the larger the need of foreign wax.

Therefore, to serve the general interest, the beekeeper who takes an important part in production competition has the duty to destroy the wax moth in his apiaries. The means to accomplish this shall be discussed below.

Absolute cleanliness in the hives, the work-shop, the comb storage place, etc. is an extremely important prerequisite to prevent the establishment of these pests. All refuse has to be carefully removed.

The most generally known way to combat the wax moth is the application of sulphur fumes. Sulphur dioxide which results from burning of sulphur is a deadly poison to many organisms of the plant and animal world, but it does not lead to a complete destruction of the wax moth. It is possible to kill the moth, the larvae and the pupae but not the eggs which are well hidden in various crevices. They hatch after a short time and the forth-coming larvae begin anew with the destruction of comb. The sulphuring of comb is therefore not recommended to the beekeeper.

The same applies to the application of the liquid "Areginal" which does not securely destroy the wax moth eggs.

The combating of the wax moth should not begin when webs, moths, larvae and pupae are present, but should be more of a prevention nature. This means it should begin early enough to kill the pest in the egg stage before feeding damage becomes evident. Therefore, a successful wax moth control can be only achieved when gases are employed which penetrate deep into the crevices where the eggs are hidden. This aim should be accomplished by

application of materials in a gas state (see below) provided a sufficiently large quantity is used and allowed to act over a sufficiently long period.

Before using one of the recommended fumigants, the following explanations have to be taken into consideration.

1. For the calculation to receive the necessary amount of the fumigant the interior size of the fumigation chamber or cabinet has to be determined in each case. For instance, calculated in centimeters the interior of a fumigation cabinet measures 25cm. (width) x 30 cm. (length) x 40 cm. (height) equals 30,000 cm. and should be fumigated with, according to instructions (see below), a substance in the proportion 500:1 (so called dilution in space.) Therefore 30,000/500 equals 60 cmm. of liquid or 60 grams of solid materials have to be used. It is always better to use too much than not enough!

The amount of material calculated in such a manner has no relation to the amount of combs which are hung into glass or porcelain vessels, e. g.

2. The periods of action for the various fumigants (see below) have to be carefully observed.

3. The combs should not contain any amount of honey.

4. Fumigation chambers have to be absolutely air tight. Not even a trace of the fumigant should escape.

To test a fumigation chamber for leaks, it is recommended to burn sulphur in there and carefully watch for places where the bluish pungent fumes escape. Such places have to be tightened by application of wax, clay, plastilin, flaxfiber and other such materials.

5. All fumigants should be poured into glass or porcelain vessels, e. g. saucers (no metal or wood vessels) which are placed in the chamber above and below the comb. A greater number of vessels secures a better action. In a fumigation cabinet of 30,000 ccm. capacity at least 6 vessels should be placed for maximum usefulness.

6. The temperature should be as close as possible to 15°C. but not below 12°C.

7. The opening of the gas chamber is best performed on the evening of the last day of treatment. The vessels with the liquid are removed from the fumigation chamber and the chamber is aired overnight with the combs still in it. Any amount of liquid which should be left over can be saved for further use, with the exception of Sulfoliquid which has to be discarded.

I. Sulfoliquid (Chemische Fabrik in Berlin Marienfelde.) A non-inflamable liquid with a pungent odor, which has the ability to generate sulphur dioxide slowly over a period of several days and thus allows the fumes to penetrate into the smallest crevices.

Application: Dilution in space 500:1, 72 hours.

II. Monochlorbenzol, a clear liquid with a pleasant odor.

Application: Dilution in space 500:1, 3 to 4 weeks.

III. Tetrachlorethau, a pungent, camphor-like smelling clear liquid.

Application: Dilution in space 1000:1, 2 to 3 weeks. Careful airing of chamber necessary.

IV. Hexachlorethau ("Mottenhexe"), a white crystalline powder with an aromatic odor.

Application: Dilution in space 1000:1, renew every 3 to 4 weeks.

V. Paradichorobenzene (Global) characteristics and application like No. IV.

VI. Calcium Cyanide. Dilution in space 1:50,000 24 hours.

A planned battle against the wax moth can be performed by keeping all extra comb not in use in tight chambers or cabinets and treat with one of the above mentioned fumigants. Even in summer an open storing of comb has to be avoided because it offers an opportunity for the wax moths to establish themselves, produce brood and start their destructive activities.

—*ABJ*—

U. S. Grades for Extracted Honey

By Elmer Carroll,

Michigan.

WHEN a customer buys a pail or jar of honey stamped "U. S. Fancy," he has the assurance that the honey was packed according to the specifications of that grade.

The requirements for U. S. Fancy grade are that the honey is free from damage caused by overheating, fermentation, honeydew, or any objectionable flavor or odor. It is free from cloudiness caused by air, pollen, or other substances. It is as free from foreign material such as wax, propolis, pollen, dust, etc., as honey strained through a standard bolting cloth of 86 meshes per inch, at a temperature not exceeding 160 degrees F. The honey must be well ripened and weigh not less than eleven pounds and twelve ounces to the gallon, (231 cubic inches) at 68 degrees.

If the container is stamped "U. S. No. 1," the foregoing specifications have been taken into consideration, except that a standard bolting cloth of 23 meshes per inch was used in the straining test.

Honey graded to U. S. standards and so marked is bringing from one-half cent to one cent more per pound. Complete information is found in the U. S. Department of Agriculture Circular No. 24 (revised).

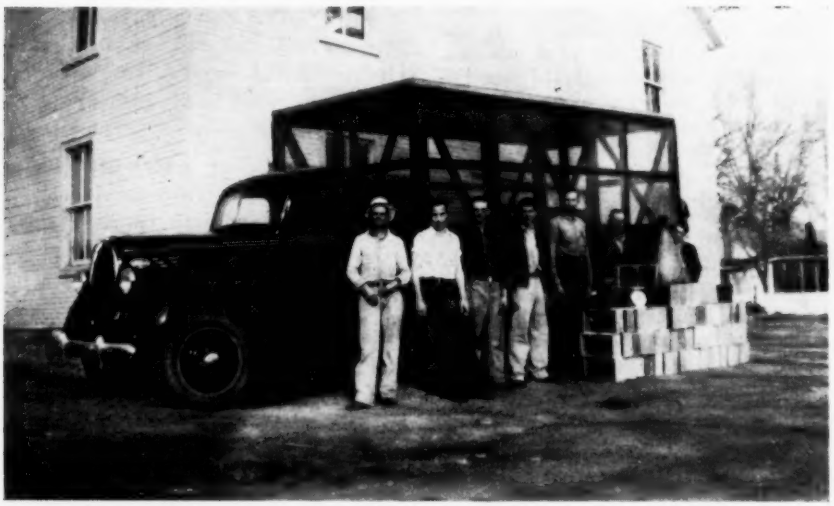
A unique plan for marketing graded honey was inaugurated in Michigan last year by the Michigan Department of Agriculture. The plan was called the Bonded Farm Produce Plan. Applying to every major farm crop, it included Michigan honey. The plan was as follows:

Every farmer cooperating paid a registration fee of one dollar to the department and signed an agreement to pack his produce as per state specifications. In the case of honey, the Federal grades mentioned above were used. The registrant was also required to file a $500 bond with the state as further evidence that he had guaranteed the pack. This bond costing $5.00 annually entitled the producer to the use of the Michigan Bonded label which was affixed to each unit of pack, and to be used only once. Small labels, blue for Fancy, yellow for No. 1, for retail packs, cost $1.50 a thousand. Larger ones for sixties and cases cost $4.50 per thousand. The money above the printing cost of the bond labels and the registration was used to advertise Michigan Farm Produce, by signs, newspaper ads, and radio.

This was a fine start and it did boost honey as well as bringing a better price, but the act was violated somewhat by egg and butter packers. It was plain to be seen that the Act lacked teeth of enforcement.

A change in administration this year brought us a new commissioner of agriculture. Seeing the weakness in the plan, his department set to work to develop a more positive guarantee of grading, the Act being void on each kind of produce until it was revamped. To date, the egg market has been revamped. It is hoped to have honey regulations ready by time the new crop is ready to harvest. Whatever changes are made known, will be published in this journal.

Screened Trucks for Hauling Bees



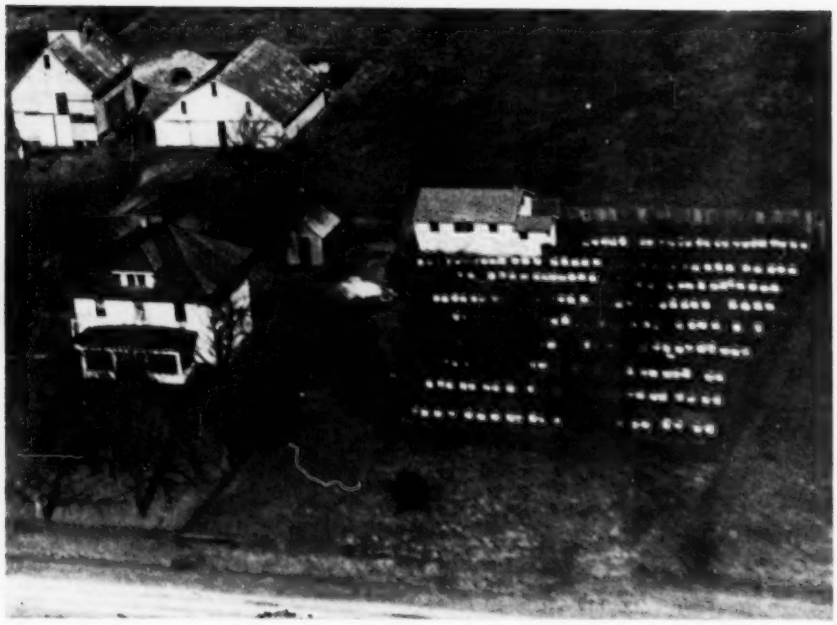
M. S. Fortune, of The Stover Apiaries, Mayhew, Mississippi, sends us this picture of their screened truck which they use in hauling bees. Mr. Fortune writes:

"This screened truck is used regularly for getting package bees. The screens are made on a specially built body, measuring inside 7 feet by 14 feet. We operate four of these trucks. They are fine for hauling packages of bees as they keep stray bees from clustering on the package and if any package should be broken or damaged, it will not cause trouble on the highway. We have brought bees in them from Helena, Georgia to Mayhew, Mississippi, a distance of 500 miles, and they worked satisfactorily. They will carry 800 2-pound packages with plenty of space for ventilation or about 700 3-pound packages."

Beekeepers moving bees along the highways, whether they are package bees, smaller nuclei, or full colonies, may eventually adopt a screened truck like this for transportation.

—ABJ—

Let's Look Down on Edward Adam



Luella B. Lyons, of Washington, Illinois, sends us this picture. It is an aerial photograph obtained from the Bloomington Pantagraph.

It shows the apiary of Edward Adam, northeast of Cropsey, Illinois, well known to Illinois beekeepers and one of the best. We do not know of any other aerial photograph of a commercial bee yard in existence.

Requeening Without Dequeening

About thirty years ago, after keeping bees for two or three seasons, I, like many other beginners, thought I knew a lot about bees and beekeeping. At that time I devised a scheme for requeening without the removal of the old queen. I had so much faith in the plan that it was tried out in a whole apiary of about fifty colonies.

The plan was this: The queens and part of the brood were raised above queen excluders and ripe queen cells introduced below with the idea that the emerging virgins would mate and return, after which the old queens could be disposed of. Well, it just didn't work out that way. All of those virgins disappeared along with a large part of the bees. Perhaps the presence of the queen in the top story did not help toward the success of the experiment. From later experience I have learned that the result was what might have been expected.

When conditions are favorable for swarming, it is seldom that a young laying queen can be reared in the presence of brood that is not sealed. Yet we frequently see impractical schemes advocated by writers in the journals. Some still say that requeening may best be accomplished by killing the old queen and introducing at once a ripe queen cell or a virgin. Their idea probably is derived from what they have read rather than from actual observation and experience. The introduction of a queen cell does not prevent the bees from starting more queen cells to be followed by swarming after the first queen emerges.

In cases of supersedure in the swarming season, when an old queen and a virgin are found together in the hive, the bees seldom swarm if the old one is allowed to remain, but if removed before the young queen is mated, cells are very apt to be started and followed by the disappearance of the virgin.

The mating of queens from an upper story sometimes succeeds if the two brood chambers are kept far enough apart by means of supers and excluders, provided also that there is only one queen cell and that the brood in the upper chamber is capped when the young queen emerges. An escape board without the tin and an excluder both placed immediately under the upper chamber, and another excluder, above the lower chamber in a three or four story hive will tend to keep the queens at a distance and will be more likely to be attended by success.

E. S. Miller,
Indiana.

Is There a Best Race Of Bees?

(Continued from page 368)

As may be observed from table 5, winter losses were limited to one colony of Caucasians in the winter of 1934-35 and one of Italians in 1935-36. For reasons already given, these data probably are not significant as far as ability to withstand rigorous winters is concerned, but they are included here to show that when given adequate protection together with an ample supply of good quality stores, winter killing is infrequent even among Italians.

Carniolan colonies wintered well without exception, whereas, among Italians it was not uncommon to find one or more colonies in a considerably weakened condition although not dead when spring arrived. A somewhat similar tendency was observed with regard to Caucasians but to a lesser degree. The ability of the Carniolans to winter well was reflected each spring in the early development of their colonies.

Colony Development in Spring.—Every spring throughout the entire five year period covered by these studies, colony development, as indicated by flight activities, became apparent in the Carniolan colonies fully two weeks in advance of a comparable development in the Caucasian group, and three weeks or more in advance of the Italians. As will be pointed out in another connection, marked development in early spring brings the Carniolans to swarming strength at a correspondingly earlier date than is usual for the other two races. Consequently one of the important points in which the management of Carniolans must differ from that for Italians, for instance, is the three to four weeks advance in dates at which the Carniolans must be given attention in spring, if the beekeeper wishes to take full advantage of this trait of extra early development of the colony.

Beekeepers interested in Caucasians will note that colonies of this race also breed up earlier in the spring than do Italians, but not so much earlier as do the Carniolans, the advance in dates for Caucasians over Italians being only about a week or ten days.

1. Baldensperger, Ph. J. The races of bees. American Bee Journal **68**:28-29 and 67-68. 1928.

2. Langstroth, L. L. Early importations of Italian bees. American Bee Journal **17**:82. 1881.

3. Phillips, E. F. Beekeeping. New York. 1928.

4. Root, A. I. and E. R. ABC and XYZ of Bee Culture. Medina. 1935.

(Continued in September Issue)

A Maryland Apiary

I have been enjoying the pictures each month in the Journal. Here is a picture of one of my apiaries. It had 370 colonies in it in April, 1937. I rented 360 to fruit growers for orchard pollination. The picture was taken in May.

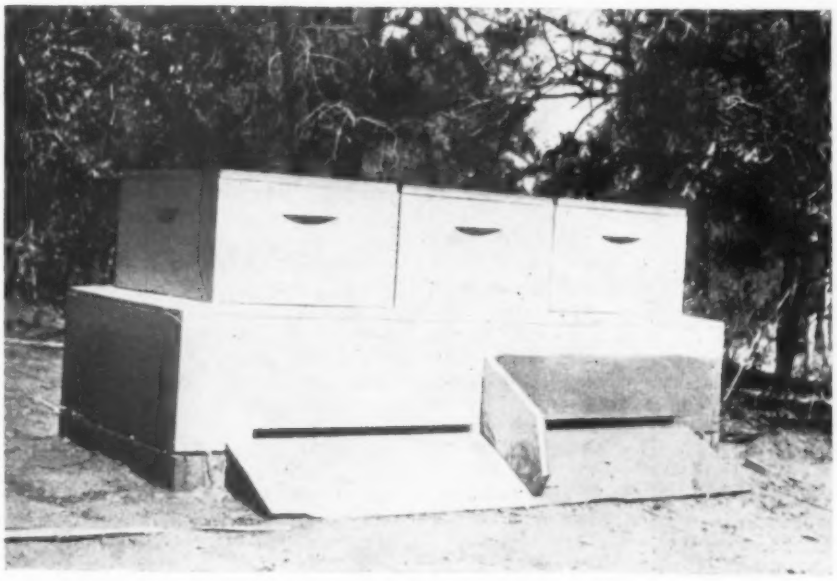
The mountains in the distance are the Blue Ridge, about a mile west. The government has 1200 acres of land there for parks.

Frederick County (Maryland) beekeepers—take a good look at this picture.

Grayson A. Domer,
Maryland.

—ABJ—

Another Two Queen Hive



This snapshot shows my idea of a two queen hive for both hot and cold weather. This hive has 32 frames, 16 in each end. A division board separator keeps the two queens and colonies apart. This separator has screen wire on both sides with only a rim of wood, so warm air can pass through. The worker bees after the supers are on can mix in the supers. They do not fight.

The hive has double walls with a 2 inch space between filled with dry leaves. The stand or foundation is four inches high, and filled with leaves. There is a winter telescope cover which telescopes down over a 6-inch tray with burlap bottom filled with dry leaves. The corners are covered with galvanized iron roofing.

The bees in this hive produce more honey, swarm less and are less trouble to manage than any hive I have tried.

J. E. Cothern,
Colorado.

And He Kept Bees

By Kent L. Pellett,

Iowa.

IT may be on slight pretext that I place old Cato among the famous beekeepers, for it was not Cato's beekeeping that made him famous. Neither did he write much about bees. We would never have heard of the fire-eating Roman redhead if beekeeping had been his sole work.

But in addition to being one of the most prominent of the public men, he was about the wisest farmer of ancient Rome. And he kept bees.

Beside his salty character and one of the three ugliest faces in history, he had two claims to fame. He egged his fellow Romans on to destroy the little republic of Carthage. And he was first among the Romans to write a book on farming.

Cato's book probably allows us to excuse him somewhat for the blood on his hands and, as we read, it may set us to wondering if we have improved either in our butchery or our farming during two thousand years. Cato, if he were living today, might not hesitate to help kill off the wild black men of Ethiopia, as has the present dictator of Rome, but he certainly would not be guilty of the ravages committed on our land the past century by our farming methods.

Cato saved every leaf that fell on his farm, and even the dung dropped by his cattle when they walked in the street. He came of a line of small farmers, who tended the land when they were not in the army. Their patience and their thoroughness were their outstanding characteristics. There was no waste of fertility on their lands. Cato was first and last a farmer as well as a Roman politician. He had his hands in the dirt when he was not shaking his fists in the faces of the crusty rich men in the senate.

Cato's farm in the Sabine country, where he was born 234 years before Christ, was large for his day, being about 160 acres. As a farm lad he became acquainted with the cultivation of grapes and olives and wheat, as well as the care of cattle and sheep. There were about 100 sheep on his farm. He had thirteen slave helpers, including an ass herder, a shepherd, the female housekeeper, and several laborers.

He understood the value of caring for his livestock. "Nothing is more profitable than the good care of your cattle," he said. This applied to his slaves also, for he saw that they were well fed and had plenty of sleep, even if he did expect them to be working most of the time when they were awake, and to sell them when they were old and worn-out. He provided them with new clothing every other year. Some farmers expected their slaves to steal what clothing they needed.

But his slaves did not keep Cato from working. He held all the leading offices at Rome at one time or another, yet he often arose before daylight to attend to his public work so he could put in a full day's work on the farm. He believed a farmer should apply himself closely to his farm, for "the face of the master is good for the land."

Cato was well acquainted with the benefits of cultivating the soil. He plowed twice, and cultivated fallow as well as seeded land. He kept a compost heap and made manure of the litter and leaves about the farm. He folded his sheep on land that was plowed and ready to seed, feeding them leaves and thus giving the land a coating of fresh manure, a practice that might well be followed today.

And he understood the value of rotation of crops. He said that barley or other straw crops should not follow wheat, but that lupines, field beans or vetch would "manure the land." Nobody had ever told him the latter were legumes but he knew their value.

While in the Roman senate, Cato fought the rich and powerful at every turn and made himself generally obnoxious to the upper classes. As censor, a position of more power than any other, he taxed luxuries almost out of existence by assessing them at ten times their value. So hostile was he to the free and easy Greek ways that were then beginning to seep into Rome, that he sought to keep laws on the statute books that would prohibit women from wearing expensive ornaments. He regulated people's behavior in other ways, expelling one man from the senate because he kissed his wife before their daughter, which Cato thought improper.

But economy lay nearest to the old farmer's heart. He got his ideas of economy from the old soldier, Dentatus. Dentatus had been given the highest honors for his military feats, but he lived in a plain house and farmed a mean piece of land. Ambassadors of the Samnites found him boiling turnips in the chimney corner when they went to make him a present of gold. Dentatus told them he did not need gold—he would rather conquer moneyed men than to have their wealth.

Cato followed the example of Dentatus, cut his expenses, did more of the farm work himself. Even in his successful old age he boasted that he always ate a light supper and a breakfast that had not seen the fire. He could make a good meal from turnips and enjoyed cooking them while his wife made the bread.

In his public life he set an example for all public men past and present. When he went to Sardinia as its governor he did away entirely with the retinue of servants and carriages, and entertainments that had been the privilege of the governors before him, and which had set the state to great expense. He incurred no expense whatever for the state in his own behalf. When he went from one town to another he walked on foot, inducing some townsman to help him carry what supplies he needed.

Yet he did not disbelieve altogether in good living. He planted elm trees along the fence rows and the roads at home. They shed leaves for the sheep and cattle, and they gave wood when needed. And with trees he had shade. He had an orchard near the house, and a garden with garland flowers of all kinds, surrounded with black and white myrtle hedges, and Delphian and Cyprian laurel.

He had bees that fed on the flowers. His apiary was only a few colonies in hives of osier placed against a wall. His beekeeping was of a rough and ready sort consisting largely of taking up the honey periodically. It did not occur to Cato, who was so careful of his time and so methodical, that it would pay him to devise or learn a better system of beekeeping any more than it occurred to him that he might breed up his cattle. If one of his helpers had been caught spending much time looking into his hives, he would have been thought a loafer, soundly trounced and sent about his business.

Neither did he find it worth-while in his book to say much about beekeeping. H. Malcolm Fraser, who has made an exhaustive study of the beekeeping of the ancients, found only two references to bees in Cato's work. He left the writing about bees to the poet Virgil who was born eighty years after Cato died and who found time to indulge his fancy, and to the encyclopedia-maker, Pliny, who came later yet and seeking to make a jotting of all knowledge, included much about bees.

But the bees were there on Cato's farm, hurrying to provide honey for his table in spite of the ignorance and neglect of the stern old Roman.

Institute News

The Institute Announces Two Programs in Interest of Greater Honey Consumption!

Hurry! Hurry! Hurry! There's not much time left! Not much time to get plans underway for cooperating to make a more popular food. At the time of writing, reports indicate that the honey harvest this year will greatly exceed that of last season. This, of course, means that we will have to double our efforts to keep our product before the public at all times. Competition hasn't decreased —buying power fluctuates—capacity to consume food remains the same. You all know the story so we'll not go into that but we should consider the question, "What are we going to do about it?"

With all of these thoughts in mind, American Honey Institute has planned two important programs—the FIFTH NATIONAL HONEY RECIPE CONTEST and the HONEY HARVEST WEEK. The Institute can reach and does reach a large number of people and through the contacts it makes, succeeds in accomplishing its aims; yet, if each of you, whether you are an Institute member or not, will plan Harvest Week and Contest publicity in your community, the success of these programs and the benefits to the industry in general, as well as to yourself, will be greatly increased.

This year the contest is different. All the contestant has to do is to send in her favorite honey recipe or menu or both according to the rules and classes of the contest. Then too, there is a special class and separate prizes for 4H Club girls. We hope this is a start toward making the homemakers of tomorrow honey conscious. A quantity of the rules and list of prizes is available. We urge that you distribute these to people outside the beekeeping fraternity since the purpose of the contest is to help increase the use of honey. This can be done best by contacting those homemakers who are not constant or well-informed users of honey.

Those of you who are on the mailing list of American Honey Institute have already received sample copies of the contest rules and list of prizes, window streamers for use during Harvest Week, information on how supplies of these may be secured.

Those not on the Institute's mailing list, we invite to join with us in promoting these two programs. The Institute will gladly welcome you as a member or will send samples and prices of the promotion helps upon request. For five cents, a copy of the special Contest—Harvest Week issue of Institute Inklings may be obtained.

The window streamers are designed primarily for use in stores during Harvest Week (October 24-29) however, this does not limit their use. There are many others you will think of to help accomplish the purpose of the week.

During the nation-wide promotion of such programs as these when honey is being emphasized, it is well to capitalize on the honey consciousness that is created. This can be done by distributing leaflets giving information on how to use honey. If you do not have samples, send your request to American Honey Institute, Madison, Wisconsin.

* * *

Honey Menu and Recipe Contest

Sponsored by American Honey Institute, Madison, Wisconsin. Over $200 in cash. Many other valuable prizes.

Rules

1. Each person may enter any one or all classes but may submit only one recipe in each class entered.
2. Put each recipe and menu on a separate card or paper measuring 4"x6".
3. Put your name and address on a separate card or paper and attach it to the entries with a paper clip or rubber band.
4. Entries must be postmarked not later than midnight, October 1, 1938.
5. Mail entries to American Honey Institute, Madison, Wisconsin.
6. No entries will be returned and all will be considered property of American Honey Institute.

Classes

Class A.—**Holiday Cookies**

Recipes must contain at least 50 per cent honey by measure as the source of sweetening. The use of more than 50 per cent is encouraged.

By holiday cookies we mean such types as pfeffernusse and Lebkuchen or any of the festive types of cookies.

Class B—**Sauces or Toppings for Ice Cream, Puddings, etc.**

Recipe must contain all honey as the source of sweetening.

Class C—**Menus for One Day.**

Menus to be for an informal breakfast, dinner, and supper or breakfast, lunch, and dinner.

Recipes for the dishes containing honey must accompany the menus.

Judging will be done on the basis of originality and the appearance, texture and flavor of the products the recipes produce. Nutritionally well-balanced meals using the most honey in the greatest variety of ways will be given the preference.

Include interesting data such as history or origin of the recipes. This material will not influence the judging.

Just as matter of information and interest, will you tell us whether you buy or produce the honey you use?

Before mailing be sure that:

Your name and address is included.

All ingredients are given and measurements are correct.

The procedure for combining ingredients is completely but briefly and clearly stated.

Class D—**Special Class for 4H Girls.**

This class is open to 4H Club Girls **only.**

The recipe must be accompanied by one dozen of the cookies it makes.

Pack cookies well. Place the recipe in a three-cent stamped envelope and paste it to the outside of the package containing the cookies.

Address the envelope and package to AMERICAN HONEY INSTITUTE, MADISON, WISCONSIN and be sure that your return address is included. The entry must be postmarked not later than midnight, October 1, 1938.

The recipe should be written or typewritten on a card or paper measuring 4"x6". Be sure that all ingredients are included and all measurements are correctly given. Be sure the procedure for combining the ingredients is easily understood by one not familiar with the recipe.

Put your name and address and that of your Club Leader on the other side of this card.

Only honey cookies described in Class D will be accepted.

Class D—**Honey Cookies.**

Entries in this class must contain at least 50 per cent honey as the source of sweetening. The use of more than this amount is encouraged.

Prize Offers

John G. Paton Co. $25.00. A. I. Root Company, $25.00. G. B. Lewis Company, $20.00. August Lotz Company, $15,00. Continental Can Company $10.00.

American Can Company, $10.00 Hazel-Atlas Glass Company, $10.00. Owen-Illinois Glass Company, $10.00. Dadant & Sons, $10.00. A. G. Woodman & Son, $10.00. Leahy Manufacturing Company, $10.00. M. H. Hunt & Son, $7.50. E. T. Cary, $5.00. Stover Apiaries, $5.00. Walter T. Kelley Company, $5.00. Irene Duax, $5.00. Standard Churn, $3.00.

Illinois Honey Foundation, $6.00. California Ladies' Auxiliary, $6.00.

American Honey Institute, $50.00. Honey Packers, Inc., 24 1 lb. jars honey and dispensers. Diamond Match Company, 2 No. 48 Dripcup dispensers filled with honey. Honey Sales Company, 6 5 lb. pails honey. B-Z-B Honey Company, 1 5 lb. pail honey. Carroll Apiaries, 1 5 lb. pail honey.

Honey Dispensers Sales Co., 8 No. 106 Dripcup dispensers. General Mills, 10 packages each Gold Medal Flour, (Class A), Softasilk Cake Flour, (Class B), Bisquick, (Class C.) Pillsbury's, 1 24½ lb. bag Pillsbury's Best Flour, 2 12½ lb. bags Pillsbury's Best Flour. Kellogg's, 1 Recipe File Cabinet. Hills Brothers, 12 packaged Ginger Bread Mix, 12 cans Date Bread. Corning Glass Works, 1 Pyrex set. Armour & Company, 1 Armour Star Ham.

Honey Acres, 3 1 lb. boxes candy, California Dried Fruit Research Institute, 24 lbs. mixed dried fruits, 24 lbs. raisins, 24 lbs. prunes.. Crowell Publishing Company, 2 5 year subscriptions to Country Home. Curtis Publishing Company, 1 5 year subscription to Country Gentleman. Household Magazine, 3 1 year subscriptions to Household Magazine. Webb Publishing Co., 2 1 year subscriptions to Farmer's Wife. Pictorial Review, 1 year subscription to Pictorial Review. McCall Corporation, 1 year subscription to McCall's Magazine. Sunset Magazine, 1 set Sunset Cook Books. Meredith Publishing Co., 1 year subscription to Successful Farming, 2 Better Homes and Gardens Cook Books.

———ABJ———

Flighty Sez:

Ma was compaining that I, or any other man, could not remember their own wedding anniversaries. So, today I stopped at the flower shop. I'd show her. I got a dozen beautiful red roses, gee, they was pretty.

Walking home, the smell of them roses set me to dreaming of the days when Ma and me was young, and I used to pluck petals from posies and say, "She loves me, she loves me not."

When I walked into the house and Ma snapped me out of my trance, I was plucking the last petal from the last rose. Gosh, did I feel cheap, especially when Ma sez, "Why, you old fool, you're a month early."

Meetings and Events

Pennsylvania State Meeting

The annual picnic of the Pennsylvania State Beekeepers' Association will be held August 20, at Dell Delight Park, Hollidaysburg, Pennsylvania. The program will begin at 10 A. M., EST., with an acquaintance hour consisting of informal discussions and demonstrations. Among the speakers on the formal program in the afternoon will be William Glebe, State Apiculturist, Harrisburg, and Dr. R. D. Anthonoy, Professor of Pomology, State College. At 3 P. M. games and contests will be held in charge of E. J. Anderson, Extension Apiarist, State College. Be sure to bring a smoker for the smoker contest. Prizes will be given. Recreation will be provided for the children by Aline M. Courtney, Home Economics Director, Hollidaysburg.

H. M. Snavely, Secretary.

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Empire State Honey Producers' Meeting

The annual picnic of the Empire State Honey Producers' Association will be held at Chazy Orchards, Chazy, New York, located on beautiful Lake Champlain, Saturday, August 13.

Chazy is located in the northeast corner of New York State, quite a long distance from some of our beekeepers; but with good roads and fast automobiles, what are a few extra miles in such a vacationists' paradise! At Chazy you will see in operation the largest McIntosh orchards in the world. The Orchards also operate several hundred colonies of bees and a roadside market where honey and apples are sold on a large scale.

Our host, Jay Gelder, has promised every facility of his organization to make this a real outing. After a hard summer's work, you owe yourself a real week-end holiday.

E. T. Cary, Secretary.

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Ohio District Meetings

The three field meetings scheduled in Northeastern, Northwestern and South-Central Ohio are sponsored by the Ohio Beekeepers' Association and the Extension Service at the Ohio University. The one day program in each of these regions will touch on problems peculiar to each, emphasis being placed on crop and market reports. The program will be especially attractive as there will be plenty of state and out-of-state talent. Each day's program will be concluded with a banquet.

August 10—The Northeastern Ohio Field Day will be held at the Ohio Experiment Station, Wooster. This will be especially unique since it is the first beekeepers' meeting ever scheduled at the Station. The forenoon's program will consist of tours which will present an opportunity of visiting experimental plots of many clover and alfalfa varieties important as bee forage; of seeing the Station's orchard where the value of honeybees in the orchard pollination program will be noted; as well as observing interesting side lights that will prove stimulating and beneficial to beekeepers.

August 11 — The Northwestern Ohio Field Day is scheduled at Mr. Clagg's and Mr. Kelley's extracting plant at Bellefontaine. Of special inducement will be the opportunity of visiting their newly constructed honey house. Extraction will be in full operation giving a chance of seeing two radial extractors, the Ontario honey strainer, and the gravity system of handling a large crop of honey, thus showing some of the rapid advancement which has been made in commercial beekeeping in recent years.

August 12—The South-Central Ohio Field Day is scheduled at Washington Court House. This is an especially interesting area as it typifies the aster territory where the fall flow is as dependable from this source as the nectars are from the clovers in Northwestern Ohio.

A copy of the program may be obtained by writing W. E. Dunham, Ohio State University, Columbus, Ohio.

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Good Turn-Out at Decatur (Ill.)

About thirty beekeepers with their families gathered under the pavilion in Fairfield Park at Decatur, July 17 for the Macon County meeting. A gentle, but stubborn, downpour reduced the crowd somewhat, but the rain was probably more needed than a greater attendance. Hoyt Taylor, secretary of the Illinois State Association, made a bid for increased membership in the state body and for support of the beekeepers at the State Fair in August. As with many other meetings, the most enjoyable part of all was the informal discussions. Everyone reported good crops and good prospects in the immediate future.

State Field Meet at Freeburg

Freeburg frame nailing contest. Duckwall won. (Fie on you)

The annual field meeting of the Illinois Association at Freeburg brought out a good crowd on a delightful day, at the apiary of L. Klein. Mr. Klein's supers were piled high, and the sweet clover and other clovers were in abundance everywhere.

At the meeting Mr. Dubord, Assistant Director of Agriculture, assured beekeepers of the cooperation of the Department of Agriculture and urged the beekeepers to support the new inspector, Carl Killion, and asked the beekeepers also to enter their honey for competition at the Illinois Fair in Springfield, August 13-21.

Milum tells the Freeburgians about Nosema.

R. H. Dadant in his talk on the cost of production stressed the necessity for having the largest possible number of colonies located where maximum yields may be obtained. Carl Killion, the new chief inspector, introduced himself, urging cooperation between the Department, the inspector and the beekeepers to obtain maximum results in disease control.

M. G. Dadant, talking on the early introduction of races of bees, painted nice prospects for the future in the way of breeding superior strains and perhaps adding also to our honey producing plants through scientific investigation.

Dr. V. G. Milum, of the University of Illinois, reported that Nosema disease is prevalent in many sections of the United States, although the amount of harm done has reached no great proportion. He also gave facts on the heating and storing of honey under proper temperatures.

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Lower Illinois Valley Meeting

An all day meeting and picnic of the Lower Illinois Valley Beekeepers' Association was held at the fair grounds in Griggsville on July 10. M. G. Dadant discussed young queens and a strong force of bees for wintering. Many queens have, this season, been worn out by a long laying season and a heavy honey crop. He mentioned the markets and local honey sales. Wesley Osborn urged members to support the American Honey Institute, since, this season, especially, the Institute will be needed to publicize honey. R. H. Dadant gave a talk on costs of producing honey. Marion Porter gave an exciting experience in which lightning struck a stack of supers in his outyard, running down the wires in the frames, melting the combs, jumping to the nails, and in one super splitting the super to pieces without doing any other harm.

Four hundred pounds were subscribed for the state fair and for premiums at the annual honey cookery contest and demonstration. The meeting closed with a visit to the honey house of Lawrence Robbins.

All members present reported a heavy crop and much difficulty with swarming. The next meeting is scheduled for August 7, an all day meeting in Nickols Park, at Jacksonville.

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Texas Ladies' Auxiliary

The Ladies' Auxiliary of the Texas association met in joint session at Lockhart, July 1. The auxiliary decided to ask the Association to set the date for Texas Honey Week, and means of celebrating the week were discussed.

Mrs. A. W. Clark, of Bandera, was elected president; Mrs. J. Claude Wilson, North Pleasanton, vice-president; and Mrs. I. F. Aten, D'Hanis, secretary-treasurer.

The Caldwell County Demonstration Clubs gave a demonstration of honey cookery in the dining room of the Home Economics Building, displaying a child's lunch in which honey was used, breads, cakes, cookies, toast, and attractive fruit plate in which fruit canned with honey was used.

Mrs. I. F. Aten,
Secretary-Treasurer

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Western New York Meeting

The annual summer picnic of the Western New York Producers Association will be held August 6 at 9 A. M. EST at Churchville Park, Shady Side. To see this park is worth while as there are several parks in one and we have selected Shady Side as it has a canopy and lots of tables and fire places.

If you have any horseshoe pitchers in the family or friends, bring them as there is to be a game in the park, there is also a ball diamond and prizes will be given. C. D. Hutchinson, of Akron, is to be manager of sports and will award the prizes.

John DeMuth, of Pembroke, will make the coffee and serve the ice cream, all that you wish, free.

We are having very few speakers and ask each member not to sell his honey at a low price until he has heard what we have to say of the supposed large crop of honey this year.

The members are making a special effort to get all out possible so please come early and bring anyone you can. We are growing and only have

AUGUST PRICES

CONTINENTAL CANS AND PAILS

2½ lb. cans, cartons of 100	$4.00
5 lb. pails, carton of 50	3.00
10 lb. pails, carton of 50	4.50
60 lb. cans, carton of 16	4.64
60 lb. cans, 100 bulk	27.00

PAPER SHIPPING CARTONS

For 60-lb. cans, each	.10
For Section Honey, 24 B'way	.12½

HART CRYSTAL CLEAR GLASS JARS with white enameled caps

½-lb. carton of 24	$ .65
1-lb. carton of 24	.85
2-lb. carton of 12	.60
3-lb. carton of 12	.65

THE BROCK STORE
Carlot Distributor
DECATUR, INDIANA

MOTT'S Northern Bred Italians

JULY

1, $1.00; 2 or more 75c each; 50, 70c; 100, 65c each; Fair to good breeders, $2.00, $3.00, $5.00; Virgins 40c. Free list and literature.

E. E. MOTT, Glenwood, Mich. U. S. A.

AMERICAN RABBIT JOURNAL
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Gives the latest news and views of the rabbit world—an illustrated monthly magazine of general and educational features. One year, $1.00; three years, $2.00; sample 15c.
AMERCAN RABBIT JOURNAL
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BUY
JOY QUEENS
Leather colored
Stock gentle and good honey gatherers. 50c each.
JOY APIARIES, BELLEVILLE, ILL.

QUEENS 50c
Our queen yard will continue to operate all summer, producing the best queens of the season. May we have your order.
ROSSMAN & LONG
P. O. Box 133 Moultrie, Ga.

QUEENS
Three Banded Leather Colored Italians
50 CENTS EACH
The Crowville Apiaries
WINNSBORO, LA. RT. 1.

IMPERIAL ITALIAN QUEENS, NUCLEI AND PACKAGES
Carefully reared queens that give satisfaction—only $ .50
Two pound package 1.95
Two pound nucleus 2.35
The Coffey Apiaries, Whitsett, Texas

one way to continue, we must depend on our programs and members for support.

An interested beekeeper is a good beekeeper and a small beekeeper today is the large beekeeper of tomorrow, but the large beekeeper is nor always the best beekeeper nor the best beekeeper the loudest, so whether you are small, large, good or poor, come and bring the kiddies for free ice cream and suckers and a day of enjoyment.

G. E. Norris, Secretary.

—o—

Ottawa County (Mich.) Meeting

The Ottawa County Beekeepers Association and associations from Muskegon and Kent counties will hold their annual picnic August 19 at Tunnel Park, Holland, Michigan. The park is on the shores of Lake Michigan.

A good program is in store. Queen bees will be donated by local queen breeders and will be auctioned to the highest bidder, the proceeds to go to the support of American Honey Institute. N. J. Smith, President.

—o—

New Hampshire Beekeepers Association

The New Hampshire Beekeepers Association is going to hold its annual meeting during the regular Farm and Home Week at Durham, New Hampshire on Thursday, August 18. The principal speaker will be Mr. Van der Poehl, bee inspector, from Massachusetts, and in the afternoon Mr. Eastwood of Lawrence, Massachusetts will give one of his inimitable demonstrations on handling bees. Henry J. Holt, Sec'y.

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Vermont Meeting

The annual picnic and meeting of the Vermont Beekeepers' Association will be held Saturday, August 20, 1938 at Sand Bar State Park, on U. S. Highway, No. 2, South Hero in Grand Isle County, Vermont. The park is a perfect place for picnic-meeting. It is on the shore of Lake Champlain and there are fireplaces, tables and benches, and facilities for swimming. The morning program will begin at 9:30 and will be taken up by a visit to an apiary of Charles Mraz, located a short distance away. In this apiary resistance breeding experiments have been carried on for the past two years and this will be an excellent opportunity for everyone to secure first-hand information on the subject.

In the afternoon the speaker will be George Rasmussen, who operates the apiaries of the Chazy Orchards. Mr. Rasmussen is an experienced beekeeper and will give us much valuable information on beekeeping.

There will be several contests, among them a smoker contest, with queen bees as prizes. Beekeepers should bring smoker and fuel, and those intending to visit the apiary should bring a veil, as the bees do not always have company manners.

Everyone interested in bees is invited to bring lunch, family, and friends. Charles Mraz, Sec'y.

—o—

Have You Thought

About attending the 1938 meeting of the Southern Beekeeping States' Federation in Charleston, South Carolina, on November 28, 29, and 30?

About the opportunities to see some of the most historic things to be found in any city in the world, including the following:

The first Reform Hebrew Synagogue in America, which incidentally, was begun in Charleston in 1824.

The College of Charleston, which is the oldest municipal institution of higher education in the United States. This college was chartered in 1785.

The massive Cooper River Bridge at Charleston which is higher than the famous Brooklyn Bridge.

—*ABJ*—

Crop and Market

(continued from page 385)

It is the writer's opinion that honey prices just now are holding up retail to last year but that possibly three will be some drop in prices when the bulk of the crop has been harvested although with such high quality honey, there is really no reason for any reduction.

Buyers' Prices

It is too early, of course, to have many buyers quoting direct prices for shipment. However, there are "feelers" and some quotations which make for an idea of which way the wind is blowing even in advance of the harvesting of the crop.

The New England and Atlantic coast states are reporting no buyers in evidence and prices holding steady in view of the crop.

The Southeast, Georgia and Florida, report probably 1 cent to 2 cents lower than last year.

Louisiana reports an offer of 5½ cents for jobbing quantities of their honey and one Texas buyer reports prices from 1 cent to 2 cents off from last year.

From Illinois, we get report of an offer from a buyer for the white honey at 6 cents f. o. b. station and two from Iowa reporting 5 cent quotation, f. o. b. station, cans furnished by the buyer.

One producer in Michigan suggests a price of 1 cent to 2 cents lower

than last year when most of the Michigan honey went at 8 cents per pound. Another Michigan producer reports approximate price of 5½ cents f. o. b. producer's station.

One Minnesota reporter was offered 5 cents f. o. b. his station, cans furnished and one South Dakota man reported 1 cent lower than last year.

In Wyoming, 5¾ cents f. o. b. shipping station is reported as having been offered and one Idaho report of 5⅜ cents f. o. b. shipping station with cans returned.

One Arizona price is for $4.25 per case for amber honey f. o. b. station and California prices have been reported as being offered, ranging from 3½ to 4½ cents for amber honey and from 5½ to 6 cents for orange.

To the writer, it would appear that a price of about 6 cents f. o. b. central western producer's point on good white, extracted honey should be low enough and should probably compete favorably with prices which will be quoted in other sections of the country for the same grade of honey.

Likely this is the year when prices will start low and stiffen as the crop moves to market. One decidedly favorable factor is that there is a large quantity this year of good white honey and not as much competition from amber grades. Large volumes of production, together with much swarming, are apt to make a good advertisement for honey and a larger retail demand on the part of local communities. We look for very heavy sales of honey outside of the general markets to prevent a glut.

Will Honey Prices Hold?

All of this would indicate that there is a possibility that honey prices will hold if general conditions are satisfactory and if the average beekeeper will do as has been done in years past, that is hold his honey until the market settles and not throw it on with the first low quotation. Likely, after all, there will be some recession in the market and some readjustment on the part of the heavy producing areas at least, although we can see no reason for much change in retail prices in those sections which have not had an especially good crop.

After all is said and done, if the producer can work on a satisfactory profit, lower prices for honey mean heavier volume of sales but the producer should by all means work at a profit or hold his honey until such a price is obtained.

The writer cannot see good white clover honey at less than 6½ to 7 cents per pound but that is no indication that the price may not be less. If the price does range less, it will mean a larger volume.

We hope by the September issue to have schedule of recommended prices and better report as to quotations and sales in a jobbing way.

Your Honey Crop for 1938

Depends upon your QUEENS. Replace all poor and failing QUEENS as soon as practical.

I am specializing in queen-rearing. I have two well known queen-breeders (men who have spent years rearing queens for the market) and with our early honeyflows all queens are reared under natural conditions. They can't be beat.

Untested queens **50c** each. 2-Lb. package of bees with queen **$1.95.** 3-Lb. package of bees with queen **$2.55.**

Dealers and buyers wanting 25 or more queens or packages, write for prices.

Forehand's Queens Since 1893

N. FOREHAND

341 CLAKE ST., DELAND, FLA.

MACK'S QUEENS

(They Speak for Themselves)

At last it has come. Colonies stacked shoulder high with mighty fine honey. But—it's been an awful hard season for queens. Many thousands will not have the stamina to bring your bees through the next honey crop. Better arrange to replace them with MACK'S Big Vigorous Northern Bred 3 Band Italians. Twenty-three years as a breeder enables us to produce queens that we can Fully Guarantee. Will have several thousand for August and September delivery.

Priced at only **50c** each

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STOCK IMPORTED FROM NORTHERN ITALY

Pure Italian queens, bred from mothers imported from northern Italy. All leather colored. You'll like them. They are different. PRICE ON REQUEST.

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	(1 to 9)	(10 to 24)	(25 or more)
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Young queens mean stronger colonies, better wintering and bigger honey crops. Requeen now. Untested queens **50c** each. 15% discount to authorized dealers.

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Crop and Market Report

Compiled by M. G. Dadant

For our Crop and Market page in August, we asked reporters to answer the following questions:

1. How good is the honey crop?
2. What will per colony average be?
3. Quality of 1938 honey compared to 1937?
4. How are retail honey prices ranging?
5. Any buyers making offers? If so, at what prices?
6. Do you think honey prices will hold to last year levels?

The Crop

Although on July 20 when this is written, the crop is still in the making in many localities, yet the reports given indicate approximately what the crop will be in many sections. The New England States, particularly Maine, Vermont and New Hampshire, seem to be very short. Connecticut average, Massachusetts, the same.

New York has a much better crop than last year and in some instances reporting best since 1927. Pennsylvania about like New York. New Jersey reports a better crop than last year. When we get into the Atlantic coast states, however, the crop has been an extreme disappointment, and in some sections, the worst failure in twenty-five years. Early flows were hindered by rain and later flows by cooler weather and sourwood did not materialize. Some of the coastal producers did fairly well.

This extends down into northern Georgia. In Georgia, the crop has been about average or perhaps below and in Florida perhaps 75 per cent of average.

The balance of the South will report about average conditions with better in Mississippi and perhaps a little less in Louisiana with Texas approximately average. Texas, however, is not producing the crops that she did a few years ago, particularly in the southern and western mesquite sections.

It is in the central western states, however, that we see the greatest difference between 1938 and 1937. Whereas last year was a failure and such honey as was produced was mediocre, this year there is a bountiful crop of finest white honey and this condition extends from Pennsylvania to central Nebraska and Kansas, and covers the lower peninsula of Michigan and the southern half of Wisconsin at least.

It is too early yet to make report on conditions in northern Wisconsin, Michigan and northern Minnesota. The weather has been too rainy and cold but there is plenty of bloom there and reports coming in within the last few days would indicate that there is a possibility that the flow will start late and end late giving beekeepers there yet an opportunity to get as much honey as last year.

The Dakotas undoubtedly will have more honey than last year since it was a failure there in 1937 in the Black Hills region.

Grasshoppers are unusually bad in western Nebraska and Kansas and in many places sweet clover has been completely eaten with the honey crop as a result very short.

In Colorado, conditions are considerably improved over last year. It is rather early to report on Wyoming, Idaho, Utah, Nevada and Montana. Such reports as have come in are that the season is late but one or two private letters have indicated in Montana at least that conditions were improving rapidly. There does not seem to be any reason to doubt that the irrigated sections will have approximately their usual yield. Washington state seems to be better off than yast year and Oregon approximately the same. New Mexico and Arizona have at least the amount of honey they had last year but California has failed badly in many cases. While in the Imperial Valley they have as much honey as a year ago, other southern California sections are very short. The orange crop probably was not up to ordinary and the sage has been a near failure with some comeback from buckwheat and other flowers. Central California fair to average and northern California, conditions somewhat discouraging although possibilities yet. All in all, the California folks undoubtedly will not have as much honey as last year and a question as to whether it will be of the quality. In other words, not as much white honey as in 1937.

The Canadian provinces, of course, are all too far north to be reporting much honey as yet but conditions are favorable. Ontario seems to be getting a fair crop.

Per Colony

Just what the average per colony is going to be is very hard to determine. Central western and the Middle Atlantic States report in almost all instances a hundred pound average with possibility of 50 per cent more at least by the time the crop is finished if weather conditions are favorable. The Atlantic coast states, New England and down into the southern states will be happy with an average of 50 to 75 pounds.

When we get to talking about what the average per colony production is going to be, it is somewhat difficult because one never knows until the last pound is extracted. It is fairly certain, however, that the per colony average this year will range considerably ahead of last year in spite of the shortage in the southeast and in California.

Quality of Honey

Strangely enough, practically all sections this year are reporting a much better honey than a year ago with the exception of California. Even in the southeastern states, reports are that the flow has come a little more rapidly when coming and, as a consequence, honey has been lighter. This is particularly true, however, in the belt of Central West and Middle Atlantic states where fine white, almost water white, honey is being produced this year, whereas last year the small crop was a nondescript grade.

Irrigated sections and the northern sections of Minnesota, Michigan and Wisconsin, of course, usually produce a high grade honey and there will be no exception this year.

Retail Prices

In New England, prices are about the same and throughout the rest of the country many reports are that the old prices are being held up for the present at least. Probably one-fourth of the reporters stated that they anticipated a little lower price retail when the crop was harvested and a price for the season was made.

Many reporters suggested that stability of the price would depend upon the price cutter and upon the amount of advance there was in business conditions generally.

(Please turn to page 382)

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LEATHER COLORED ITALIAN QUEENS 50c each. Quick shipments on large or small orders. Diemer Bee Co., Liberty, Mo.

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FOR STRONGER COLONIES, Bigger Honey Crops and Gentler Bees try our prolific, well bred, three banded Italian queens. They are used and endorsed by many leading beekeepers of the U. S. and Canada. Now until November, select young laying queens 50c each. Prompt deliveries. No disease.
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NORTHERN BRED Italian Queens, hardy stock, good workers. 75c each—lots of 5, 70c each. A. G. Woodman Co., Grand Rapids, Michigan.

QUEENS—A limited number of select Italian stock, warranted purely mated. No inbreeding permitted. 40 years' experience. 50c each. Thomas Broderick, Moravia, New York.

ITALIAN BEES that please. Selected queens 60c each. Reacroft, Reynoldsville, Pennsylvania.

MOUNTAIN GREY Caucasian Queens until November 1st, 50 cents each. 15% discount to dealers. Prompt shipment. Tillery Brothers, Greenville, Ala., Rt. 4, Box 132.

REAL PETS—Brown's Stingless Bees. Good honey gatherers, non-swarmers. Season's price $1 a queen; over 10, 90c each. Brown's Apiary, Cape May Court House, N. J.

EMPIRE STATE STRAIN ITALIANS. Bred for honey production. 50c each. Coggshall & Son, Groton, N. Y.

GOLDEN ITALIAN QUEENS that produce workers very gentle to handle, good honey gatherers. Health certificate. Satisfaction guaranteed. Select tested $1.50; tested $1.00; untested 50c. D. T. Gaster, Rt. 2, Randleman, N. C.

LONG-TONGUED Caucasian Bees and Queens. Gentle, prolific, hardy. Better honey gatherers, winter better. Queens 50c each. 15% discount to dealers. P. B. Skinner Bee Co., Greenville, Ala.

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FOR A GOOD HONEY CROP try our Three-Banded Italians. Alamance Bee Company, Graham, N. C.

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FOR SALE—New crop fine clover honey in 5-gallon (60 pound) cans. One can to tons, as you desire. Also 5 and 10 pound pails chunk comb honey. Sample free for the asking. W. S. Earls, New Canton, Ill.

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WANTED—Car lots Extracted Honey; also comb. Mail samples state quantity and price. Walter Geiger, 325 West Vine Street, Milwaukee, Wisconsin.

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300 OR MORE CASES 2-60 lb. honey cans used once. Good clean cases. Cheap. A. L. Haenseroth, 4161 Lincoln Ave., Chicago.

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NEW 2 FRAME reversible extractors at the price of used machines. Welded construction, cannot be beat, free literature. Walter T. Kelley Co., Paducah, Ky.

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WANTED—Experienced extra man of good habits for extracting and apiary work. State experience and wages expected. Room and board furnished. John Kneser, Hales Corners, Wis.

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YOUNG MAN with universal beekeeping experience, honey production, queen-rearing, etc., desires position as manager. Had experience with 2000-3000 colonies in the clover belt and the deep South. Intelligent and efficient. Write to American Bee Journal.

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500—4¼x1⅞ No. 1 sections, $4.85; 500—4¼x1½ No. 2 sections, $3.00; 100—2½ lb. honey cans, $3.85; 50—5 lb. honey cans, $3.25; 50—10 lb. honey cans, $4.75; 24—60 lb. honey cans, $8.40; paper cartons for 60 lb. cans, 50, $5.00: 24—8 oz. modernistic jars, 67c; 24—16 oz. modernistic jars, 85c; 6 gross 16 oz. modernistic jars, $28.80; 12 gross 16 oz. modernistic jars, $54.00; 1 carton of 12 modernistic jars, 60c; 5 lb. medium brood foundation, $2.50; 5 lb. super foundation, $2.75. Write for what you want. The price is right. Rettig Supply Co., Wabash, Ind.

YOUR WAX WORKED into medium brood foundation 15c pound; thin super 22c. Fred Peterson, Alden, Iowa.

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PORTER BEE ESCAPES save honey, money, avoid stings; faster, most efficient. R. & E. C. Porter, Lewistown, Ill.

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White colver and alsike are still blooming. Hives on scales show from four to eight pounds gain per day. Looks as though we may have another months flow before us. However, that will depend on the rainfall. It is getting pretty dry here now although we had a little rain within the last twenty-four hours.

We will have the biggest crop of the finest white honey we have had in this country for the past ten years and I do not know hom many more.

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It Pays to Requeen in August and September
Get your late Summer and Fall Queens from
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Write for **free** *Book on the . . . GREAT NORTHWEST*

Thousands of acres of sweet clover and other honey plants that give honey of high yield and fine quality. Favorable localities—Red River Valley, in Minnesota and North Dakota; Milk River Valley; Lower Yellowstone Valley; Valier Project; Kootney valley, in Montana and Idaho; and the Pacific Coast Region in Oregon and Washington. ● Beekeepers in this country are increasing their holdings and new beekeepers are establishing themselves along the Great Northern Railway in these states. Diversified farming and livestock are similarly favored by low cost production. ● Write for Free Booklet on beekeeping and farming opportunities, including Law Homeseekers' Round Trip Excursion Rates.

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Prompt Shipments

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BETTER BRED QUEENS

Three Banded Italians

Quality as good as can be produced.
Quantity—a large output.
Service—orders filled same day as received.

Any quantity 42½c each. Basswood queen cages cheap. Write for prices.

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1 to 49	50 cents each
50 to 99	45 cents each
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Queens are carefully raised by men that have had years of experience and are interested in the business

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Choice Bright Italian Queens

that are a pleasure to work with and be proud to own. The stock has been bred and selected in the North the past 34 yrs. for good winterers, hustlers, gentleness, and fine color. 75c each; dozen, $8.00; breeders, $6.00.

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Select untested queens as good as money can buy. Guaranteed live delivery. Our queens are reared right.
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Untested 50c; Tested $1.00; Breeders $3.00 to $5.00 each. These queens build colonies that it is a pleasure to work with. Good honey producers.

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Pure Italian Queens and Bees
Nothing but the best queens 50c ea. subject to a discount. Pound bees also. You send for them they go.

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ALL GRADES
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Any Quantity.

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Mountain Gray Queens

Gentle hardy and good honey gatherers, fresh from our yards to you, queens untested, 50c each.

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Queens Bees

THREE BAND ITALIANS

We mate all our queens from strong 3 standard frame nuclei. Large size.

Young laying queens	50c
2 lb. package, queen	$1.95
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Prompt delivery. Guaranteed to please

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QUEENS 50c; 2-lb. pkg. with queen $1.95; 3-lb. $2.65.

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Descriptive circular supplied.

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Save back breaking work on that big crop.
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Write for full details.

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For Over 50 Years

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Orders shipped the day received 2 lb. pkg. with young laying queen, $1.95 each; 3 lb. $2.55. Each additional lb. bees 60c. Queens 50c each. 15% Discount to dealers

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Package Bees and Queens
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Most excellent strain, three-banded stock. One queen 75c, 3 for $2.00. Stamps taken for single queen. Koolairy veil $1.50 postpaid. SAFIN cage 15c ten for $1.00.

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	50	100	500
2½ lb. pails		$4.20	$19.65
5 lb. pails	$3.20	6.10	29.00
10 lb. pails	4.65	9.10	43.25

60 POUND CANS

	1 case	10 cases	50 cases
2 cans in a case	$ .95	$9.00	$42.50

GLASS JARS

	1 case	10 cases
8-oz., 24 in a case	$ .70	$6.75
16-oz., 24 in a case	.90	8.75
32-oz., 12 in a case	.65	6.25
48-oz., 12 in a case	.70	6.75

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	100	500
Window cartons, all sizes	$1.20	$5.50
Bag Wrappers, 4¼x4¼	.95	4.05
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WANTED BEESWAX any quantity for sale, trade or working into Busy Bee Brand Foundation.

WANTED orders for 1 dies, ames and foundation. Ample stock for quick shipment. Be ready for the big flow of '38.

WANTED orders for queens for your summer requeening. Our Northern queen yards will be under way June 1st. Best stock Italian queens raised with best methods and best queen breeder we know of. Two orders of packages of 500 shipped from our Georgia Apiaries in April, lost one queen so far. We believe this is good.

Queens 60c each, any number

Mention the American Bee Journal When Writing Advertisers

The Postscript

Gossip About the Office in the Making of the Magazine

A Nebraska reader sends a specimen of a cloverlike plant with small yellow flowers with an inquiry about its value. Black Medic, **(Medicago lupulina)** is widely distributed but seldom very common. Unlike most of its relatives among the clovers and alfalfas it seldom is to be found in dense masses in compact areas. Although the bees are often observed working its blossoms it apparently is of little value as a source of honey in America. In England it is said to produce honey in dry seasons.

———ABJ———

The blue flowered sweet clover, **(Trigonella caerulea)** appears to be of little value under midwestern conditions if we are to judge from the plot in our test garden. The plants turned yellow and dropped their leaves soon after the flowers opened. Indications are that it suffers from disease as a result of unfavorable climatic conditions. In the search for new plants which may be useful one must expect numerous failures to one success.

———ABJ———

The Zofka red clover has shown some insect injury and leaf burn but so also has white Dutch clover and alsike clover near by. The Zofka clover did set seed freely in the first crop of blooms. A close inspection of the plot shows much variation in the plants and indicates that some selection will be needed to develop a strain suited to our climatic conditions. The fact that the plant does have a short corolla tube which makes the nectar available to bees which cannot reach it with ordinary red clover, encourages continued effort to increase the available supply of seed.

———ABJ———

When the yellow sweet clover bloomed this summer the bees deserted nearly everything else. One exception was our lone persimmon tree. The bees are always attracted to that and never fail to swarm over the blossoms during its period of bloom. Another very attractive source of nectar is our small plot of Phacelia tanacetifolia, which is one of the richest of the honey plants. Not a bee is to be seen on the flowers of some common plants which are usually regarded as good bee pasture. This is probably to be explained by the heavy yield of the sweet clover, blooming at the same time.

———ABJ———

Bernarr McFadden, famous New York publisher, is widely known as a champion of common sense living as a means of health. His annual health hike is an event which attracts wide newspaper comment. One reporter dubbed it, "The Bunion Derby" and numerous similar titles have been suggested. This year the hikers walked from Cleveland, Ohio, to Dansville, New York, a distance of 265 miles.

The McFadden truck which followed the hikers served "cracked wheat dinners" and similar simple meals. Beekeepers are interested in the fact that honey had a prominent place in the menu along with cracked wheat, steamed raisins, and butter.

———ABJ———

My daughter Ruth left her two babies behind and joined this year's hike during which she acquired a good coat of sun tan and a ravenous appetite. I prefer to take my exercise a little more moderately by spending a few hours every day in the apiary or the garden, but she developed great enthusiasm for a long hike in company with others of similar taste. Some of the hikers called her the "Honey Girl," whether from her personal attraction or because of her ancestry I am not quite sure.

Earl C. Reed, of Mountainview, Wyoming, asks for suggestions as to the variety of sweet clover to try for the dry lands of the West where irrigation is not available. Any strain will succeed where there is plenty of water along the irrigation ditches.

Probably the most promising sweet clover for a dry situation is the one commonly called "Arctic Sweet Clover" in western Canada. This is perhaps a little more woody in character, with coarser stems than the common sweet clover, but it comes from a very dry and cold region in Siberia where it was found originally by Dr. N. E. Hansen, a plant explorer for the U. S. Department of Agriculture.

———ABJ———

Beekeepers who are located in especially dry localities will do well to try out this strain of sweet clover. I do not know where seed can be had at present, but a letter to Dr. N. E. Hansen at Brookings, South Dakota, or to Dr. T. M. Stevenson, Experiment Station, Saskatoon, Saskatchewan, may bring the information. Both these men have worked extensively with sweet clover for dry regions.

Our plot of Arctic sweet clover showed not the slighest evidence of checking of growth through our extremely dry weather, but at the worst we had more moisture than they get in much of the inter-mountain region at times. However, some of the finer stemmed varieties do quite well here and appear more desirable where they can be grown.

———ABJ———

John Jessup expresses surprise that western Iowa should have one of the best honey crops it has ever had when prospects in early spring were so discouraging. Reports indicate that many localities where crops have been short the past few years are favorably situated this season. A big crop is all the more appreciated because of the lean year that preceded it.

———ABJ———

Our histories are largely devoted to recording the story of our political contests and our warfare, with but little attention to our agricultural or industrial development. Although more books have been written about bees than any subject in the field of agriculture, there is no history of beekeeping. Such a book is now in press and the publishers expect that it will be ready about the first of September.

———ABJ———

"A History of American Beekeeping" will attempt to supply information regarding the important events in our industry from the colonial period down to the time of the World War. Such things as were initiated prior to that time are brought down to the present in order to complete the story. No attempt is made to include the very recent work of present day interest and but little mention is made of the work of living men, except as it carries the story of earlier events to completion.

———ABJ———

Nearly 200 people came to the bee meeting held at our farm on July 14. The day was delightfully cool, in marked contrast to the blistering heat of the day of the meeting two years ago. Beekeepers are friendly folks and enjoy getting together for a few hours now and then. First a fruit man and then an entomologist expressed astonishment that so many would come to a "bee" meeting. Had they been better acquainted with the beemen they would not have been surprised for enthusiasm runs high when there is a crop in sight.

FRANK C. PELLETT.